

# Commercial Refrigeration

AND AIR CONDITIONING

Looking for  
new applications?  
Then try these  
for profit!

UPRIGHT FREEZERS SERVE MANY USES

Page 28

PARKING LOTS NEED COOLING, TOO

Page 29

HOTHOUSE COOLING — A PROFITABLE PARADOX

Page 32

INDUSTRIAL PROCESSING AND RESEARCH NEEDS

Page 37

COMFORT COOLING FOR PRODUCTION WORKERS

Page 42

Your Subscription to this National Magazine is by Compliment of

**HARRIS SUPPLY COMPANY**

GRAND RAPIDS, MICH.  
878 Grandville Ave., S.W.

KALAMAZOO, MICH.  
9-11 Mills Street

# FIRST AGAIN for Profitable Refrigeration Sales...

## BRUNNER "OPEN TYPE" REFRIGERATION UNITS WITH A **5 YEAR WARRANTY POLICY**

Think what this means to *you* and *your* customers! Offer all the application versatility of "open type" refrigeration units, a "name" product respected and preferred wherever commercial refrigeration is used, then top all this with the purchasing confidence which comes with a BRUNNER 5 Year Protection Policy.

### Only BRUNNER Dealers have these Exclusive Selling Advantages

BRUNNER'S New 5 Year Protection Policy is offered as an option with all "open type" models of BRUNNER Refrigeration Compressors from 1/4 hp. to and including 10 hp. capacities. Competitive selling goes out the window when you offer BRUNNER "open type" Refrigeration and the 5 Year Protection Policy.



### BRUNNER *Brunner Five Year Protection Policy* BRUNNER

No.

We hereby make the following warranty and agree to the following 5 year Protection Plan to the original purchaser-user, bearing the BRUNNER trademark to be free from defects in material or workmanship under normal use and service. Our obligation under this warranty shall be limited to furnishing, F.O.B. at Utica, N.Y., a replacement for any material or workmanship under the following provisions.

**STANDARD ONE-YEAR WARRANTY**  
WE WARRANT the BRUNNER equipment bearing above serial number sold by us and all parts thereof to be free from defects in material or workmanship under normal use and service. Our obligation under this warranty shall be limited to furnishing, F.O.B. at Utica, N.Y., a replacement for any material or workmanship under the following provisions.

This warranty is in lieu of all other warranties expressed or implied and of all other obligations or liabilities on our part, to any party whatsoever, and part of said equipment which proves defective within one year from date of original installation, which is returned to us F.O.B. Utica within said period, and which our examination shall disclose to our satisfaction to be thus defective.

This warranty is in lieu of all other warranties expressed or implied and of all other obligations or liabilities on our part, to any party whatsoever, and part of said equipment which proves defective within one year from date of original installation, which is returned to us F.O.B. Utica within said period, and which our examination shall disclose to our satisfaction to be thus defective.

we neither assume, nor authorize any other person to assume for us, any other obligation or liability in connection with the sale or installation of said BRUNNER equipment or any part thereof. There is no warranty whatever as to said BRUNNER equipment or any part thereof which has been subject to any accident, alteration, or misuse.

**FIVE YEAR PROTECTION PLAN FOR BRUNNER COMPRESSOR ONLY**

In addition to the one-year warranty on the above BRUNNER equipment, we also agree to repair, replace or exchange at our option F.O.B. Utica, N.Y. for the original purchaser-user only, at any time during the five-year period following date of delivery to the original purchaser-user, if compressor body or defective part be returned prepaid to Utica, N.Y., the defective compressor or part thereof, if it is proved to our satisfaction to be inefficient or defective due to defects in material or factory workmanship. Compressor body or defective parts must be returned with proper Brunner Application Form through a recognized refrigeration organization. The term "compressor" means of the shaft, shaft seal, rods, piston, wrist pins, valve plate assembly, and housing in which these parts are enclosed.

This Five Year Protection Policy does not include labor charges incidental to the replacement of parts. Such policy further does not include any equipment to which said BRUNNER compressor is connected such as cooling coils, temperature controls, refrigerant metering devices, refrigerators, etc. This Five Year Protection Policy does not include electric motors, condensers, receivers, controls, bells, etc. This policy shall be void if said BRUNNER compressor in our judgment has been subjected to misuse, negligence, free chemicals in system, accident or operated contrary to the BRUNNER Manufacturing Company recommendation or if the serial number has been altered, defaced or removed.

**GENERAL CONDITIONS**

Performance by us under this warranty and 5 year Protection Plan is contingent upon causes beyond our control and we shall not be liable for any default or delay in performance thereunder caused by any contingent beyond our control including war, governmental restrictions or restraints, strikes, fire, floods or short or reduced supply of raw material.

The term "original purchaser-user," as used herein, shall be deemed to mean that person, firm, association or corporation for whom the BRUNNER equipment referred to herein is originally installed within the United States.

This Five Year Protection Plan applies only to BRUNNER compressors installed within the United States.

The foregoing warranty and 5 year Protection Plan are expressly in lieu of all other warranties expressed or implied and of all obligations or liabilities on our part, and we neither assume nor authorize any other person to assume for us any other obligation or liability in connection with the sale of said BRUNNER compressing unit, BRUNNER compressor, or any part or parts thereof.

BRUNNER MANUFACTURING COMPANY  
Utica, New York

By \_\_\_\_\_ Title \_\_\_\_\_



# BRUNNER

SINCE 1906

## REFRIGERATION

Write us for all the details!

BRUNNER MANUFACTURING CO., Utica 1, N. Y., U. S. A.



### AIR CONDITIONERS

BRUNNER "Open Type"

Compressors installed in all BAC Air Conditioners are also offered with the BRUNNER 5 Year Protection Policy.

Circle No. 1 on Reader Service Card for more information





# ALCO EVAPOTROL 760

*prevents freezing  
and de-humidification*

allows precision regulation of individual evaporators in multiple systems  
—maintaining constant pressure despite sudden load changes

## Engineered for Servicemen:

- simple come-apart construction—easier to service on the spot
- gauge connection for accurate gauge setting—prevents error in setting
- strong, safe sweat connections—no leaky flares or nuts, no large tubes to flare—easy and economical to install

See the 760 Evapotrol at your ALCO wholesaler—or write for Bulletin 760 giving complete details.



## ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers  
of Thermostatic Expansion  
Valves, Evaporator Pressure  
Regulators, Solenoid Valves,  
Float Valves, Float Switches 4864

Circle No. 2 on Reader Service Card for more information



# 3 WAYS BETTER

✓ HIGH STABILITY

✓ LOW WAX

✓ LOW MOISTURE



## THE FINEST REFRIGERATION OIL... ... at any price!

THE NEW ... IMPROVED ... ANSUL REFRIGERATION OIL ... IS A RESULT OF THE PERSISTENT SEARCH BY ANSUL CHEMISTS AND REFRIGERATION TECHNICIANS FOR THE FINEST QUALITY REFRIGERATION OIL ... AT ANY PRICE!

Since Ansul Refrigeration Oil was introduced in 1949 ... its acceptance by refrigeration men has continued to expand. In only two short years Ansul is one of the leading refrigeration oils sold exclusively through Refrigeration Wholesalers.

The New ... Improved Ansul Refrigeration Oil is now available at leading refrigeration wholesalers everywhere. It meets, or surpasses, every specification established by Ansul Research for a high quality refrigeration oil.

BUY IT AT THE NEW LOW PRICE. Use it for more dependable, trouble-free lubrication.

Ansul has greatly increased its Research facilities — expanded its Research Program — and added new modern Pilot Plant facilities to better serve the Refrigeration Industry.

ANSUL SULFUR DIOXIDE • ANSUL METHYL CHLORIDE  
ANSUL OIL • KINETIC "FREON" REFRIGERANTS

ALSO MANUFACTURERS OF INDUSTRIAL CHEMICALS • DRY CHEMICAL FIRE EXTINGUISHERS

Circle No. 3 on Reader Service Card for more information

### NOTE THESE IMPORTANT ANSUL FEATURES

- \*Lower flocc point.
- \*50% lower wax content.
- Moisture — ANSUL CONTROLLED minimum.
- \*Lower pour point.
- Rigidly checked for high stability.
- \*Lowest affinity moisture.
- New low price.
- Available in quart, gallon and 2-gal. cans; also in 5-gal. and 55-gallon steel tainers.

\*Improved features

**ANSUL**  
CHEMICAL COMPANY  
REFRIGERATION DIVISION  
MARINETTE, WISCONSIN



FEBRUARY, 1952

VOLUME 9, No. 2

# Commercial Refrigeration

AND AIR CONDITIONING

Established 1944 as  
THE REFRIGERATION INDUSTRY

THIS MAGAZINE has no  
official affiliation with ANY  
group, society or association.

IRVING B. HEXTER  
President

LESTER P. AURBACH  
Executive Vice President

EDWIN M. JOSEPH  
Vice President

JEROME R. PESKIN  
Vice President

THEODORE T. QUINN  
Managing Editor

JAMES R. McCALLUM JR.  
Editor

WARREN W. FARR  
H. S. McCLOUD  
Editorial Advisers

EDWIN M. JOSEPH  
Circulation Director

Address communications to  
COMMERCIAL REFRIGERATION  
AND AIR CONDITIONING

1240 Ontario Street  
Cleveland 12, Ohio  
Phone: Superior 1-9622  
Teletypewriter: CV-233

SALES OFFICES  
New York

LEE HAAS  
60 E. 42 Street  
Room 805  
Murray Hill 7-3420

CHICAGO 11  
F. P. MIGNIN JR.  
520 N. Michigan Ave.  
Room 734  
Superior 7-7823

LOS ANGELES 17  
FRED W. FRISENFELDT  
1250 Wilshire Boulevard  
Room 607  
Tucker 6703

LONDON, E.C.4, ENGLAND  
JOHN A. LANKESTER  
5 New Bridge St.  
Fleet Street

THE COVER . . . Researchers of the American Petroleum Institute check the purity of a hydrocarbon by measuring its freezing point. By use of the platinum resistance thermometer and an extremely accurate resistance bridge, they will be able to obtain an accuracy within 0.002 C in freezing point comparisons. For news of other industrial applications of cooling equipment turn to page 37.

SPEARHEAD FOR SALES.....	28
SOMETHING NEW UNDER THE SUN.....	29
LOWER YOUR TAX BILL.....	30
FLOWERS THAT DON'T BLOOM IN THE SPRING.....	32
STOP GUESSING ABOUT MOTOR TROUBLES.....	35
INDUSTRIAL APPLICATION BRIEFS.....	37
FIRST FOR FACTORIES.....	42
THE HEATING SIDE OF AIR CONDITIONING.....	50

About People .....	40
BTU's .....	24
Contractor News .....	69
Here's How .....	81
New Products .....	61
Opportunities .....	79
Over the Counter .....	18
Practical Refrigeration Applications Manual .....	77
Useful Literature .....	58
Index to Advertisers .....	84



Published monthly by REFRIGERATION PUBLICATIONS, INC., an affiliate of INDUSTRIAL PUBLISHING Co., publishers of APPLIED HYDRAULICS, FLOW, INDUSTRY & WELDING, OCCUPATIONAL HAZARDS and PRECISION METAL MOLDING. Member, Controlled Circulation Audit, Inc. Not responsible for unsolicited editorial material.

Subscription rates: United States and possessions—\$3.00 per year. \$5.00 for 2 years; Canada—\$4.00 per year, \$6.00 for 2 years; Single copy price, 30 cents. Foreign subscriptions \$5.00 per year, except the United Kingdom. United Kingdom subscriptions £1.10 per year, payable in Sterling to our London Office. All subscriptions subject to individual acceptance by the publisher. Acceptance under Section 34.64, PL&R, authorized at Milwaukee, Wisconsin.

# McQuay

## HOT GAS DEFROST SYSTEM

The McQuay Hot Gas Defrost is a "reverse cycle" refrigeration system which provides comparatively frost free evaporator operation on low temperature applications ( $-20^{\circ}\text{F.}$  to  $+32^{\circ}\text{F.}$ ).

In effect the McQuay system is a "heat pump" utilizing the air cooled condenser to furnish the heat required for defrosting. Thus an unlimited amount of hot gas is available.

### IT'S GOT EVERYTHING!

- **Completely Automatic**—The timer automatically switches the system over on the defrost cycle.
- **Fast Operation**—The "reverse cycle" principle provides an abundant supply of hot gas for quick defrost.
- **Uniform Temperature**—Fixture temperatures are closely held because defrost periods are short.
- **Maximum Efficiency**—Since the evaporator coil need never be heavily frosted, the entire refrigeration system operates at peak efficiency.
- **Thorough Defrost**—All parts are thoroughly defrosted on each cycle.
- **System Simplicity**—The McQuay "reverse cycle" method uses the standard components of a conventional refrigeration system and merely adds a control system to provide the defrost cycle.
- **Dependable Performance**—Being self-contained and not dependent upon auxiliary components and services, uninterrupted operation is assured.
- **Compact Evaporator**—It has the famous Ripple Fin-Ripple Tube coil. Seamless copper tubes are hydraulically expanded into plate type aluminum fins. Drain pan is heated by a serpentine coil in the hot gas defrost circuit.
- **Easy to Install**—The hookup is a standard refrigeration system with only minor modifications.

Representatives in principal cities or Write  
for Condensed Bulletin 50.



Model of Hot Gas Defrost System for demonstration rather than actual installation

# McQuay

INC.

AIR CONDITIONING  
REFRIGERATION  
HEATING



1643 BROADWAY STREET NORTHEAST • MINNEAPOLIS 13, MINNESOTA

Circle No. 4 on Reader Service Card for more information

FEBRUARY, 1952 • COMMERCIAL REFRIGERATION

# JE

# Solenoid Valves

*A Series of  
Dependability Features*  
Number Five

## Opening Pressure Differential

*Made Better to  
Serve Better*

JE Solenoid Valves have a high opening pressure differential rating—higher than most other Solenoid Valves on the market. They meet the catalog rating of 250 PSI differential with less than 85% of rated voltage applied to the coil. This is made possible by the use of a direct-acting plunger—there is no temperamental "impact" action to cause difficulty—no sliding pistons to jam.

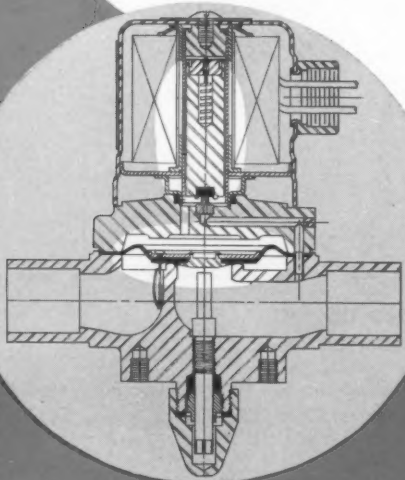


## SOLENOID VALVES

*Have 5 Major Features of Dependability*

- 1 Tight Seating — No bubble tolerance
- 2 Simplicity — Only two moving parts
- 3 Long Life — Cool Coils
- 4 Durability — All corrosion-resistant materials
- 5 Opening Pressure Differential — higher than most others on the market.

*May we submit samples for your test and approval?*



*Write Today for Details*

**Jackes-Evans Manufacturing Company**

4427 Geraldine Ave.      Controls Division      St. Louis 15, Mo.

Circle No. 5 on Reader Service Card for more information

# VACUUM

*at your beck and call*

Here's high vacuum you can count on — ready to go to work for you wherever and whenever you need it. It's the new Kinney Vacuum Pump Model CVM 3153, a small pump for big results.

Model CVM 3153 is fast, quiet, dependable . . . produces low absolute pressures of 0.2 micron or better. It employs the famous oil-sealed pumping system that has made Kinney a household word wherever high vacuum is needed. Despite its light weight (only 70 lbs. complete with ¼ HP motor), Model CVM 3153 has a free air displacement of 2 cu. ft. per min. . . . unequalled by any pump of similar size, weight, and horsepower. Construction is extra-rugged throughout, for long-lasting efficiency.

Send coupon for complete details. KINNEY MANUFACTURING CO., Boston 30, Mass. Representatives in New York, Chicago, Cleveland, Philadelphia, Los Angeles, Houston, New Orleans, San Francisco, Seattle, and foreign countries.



KINNEY MANUFACTURING CO.  
3618 Washington St., Boston 30, Mass.

Please send Bulletin V51-A describing Kinney Vacuum Pump Model CVM 3153. Who is my nearest Kinney Distributor?

Name.....

Company.....

Address.....

City..... State.....

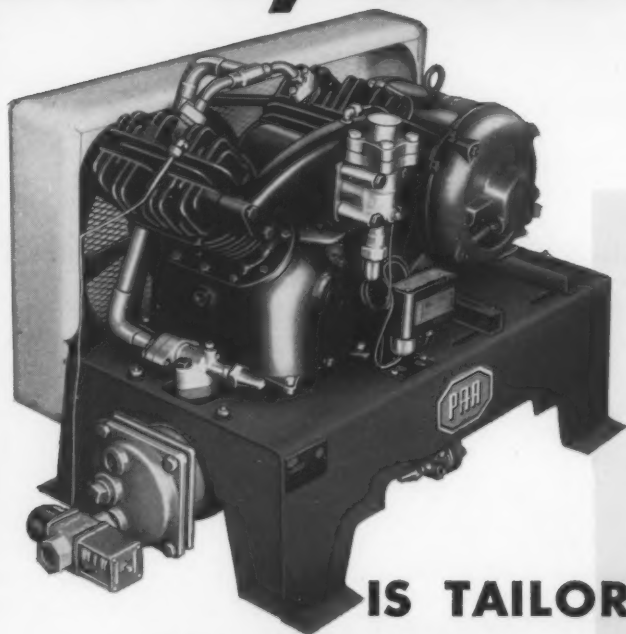
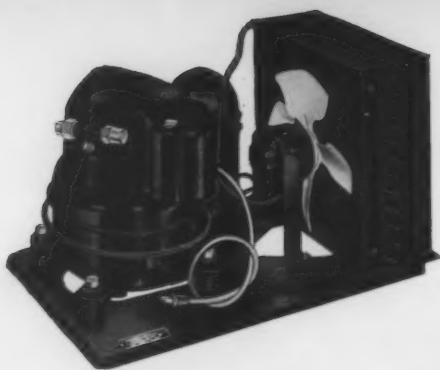
Circle No. 6 on Reader Service Card for more information

FEBRUARY, 1952 • COMMERCIAL REFRIGERATION

**FROM 260 B.T.U.**

**TO**

**204,000 B.T.U.**



**PAR**

**IS TAILORED  
TO GIVE YOU THE HIGHEST  
QUALITY, ECONOMICAL PERFORMANCE!**

**BY COMPARISON—YOU'LL BUY PAR**



**PAR AIR  
COMPRESSORS**



**PAR  
REFRIGERATION  
COMPRESSORS**



**WRAP-O-MATIC  
CANDY & COOKIE  
WRAPPING  
MACHINES**

**LYNCH**

**CORPORATION**

**PAR COMPRESSOR DIVISION**

**TOLEDO, OHIO  
SAN FRANCISCO, CAL.**



**MORPAC  
PAPER PACKAGING  
MACHINES**



**MORPAC  
BUTTER & OLEO  
CARTONING  
MACHINES**

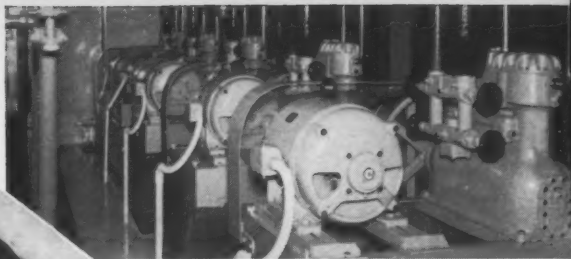
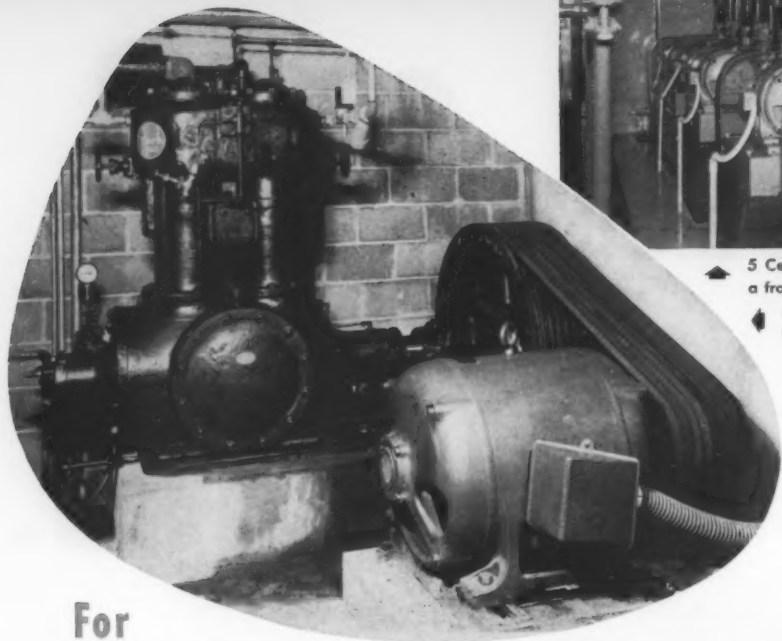


**GLASS FORMING  
MACHINES**

Circle No. 7 on Reader Service Card for more information

**and AIR CONDITIONING • FEBRUARY, 1952**





5 Century type SCH motors driving compressors in a frozen food plant.

Century 75 horsepower Type SCH motor driving a compressor in a skating rink.

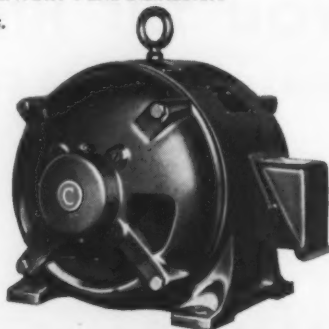
**Unusually Quiet  
Starting and Running  
Characteristics**

**For  
REFRIGERATION COMPRESSORS**  
You Need the High Starting Torque of . . . .

*Century*

**Century Service Is Near Any Century Motor Driven Equipment.** Prompt Service is offered by CENTURY'S National Network of more than 200 Authorized Service Stations, supervised by 28 Century Sales offices.

- 1 Facilities for immediate exchange of most CENTURY standard ratings of standard construction are available at CENTURY Authorized Service Stations.
- 2 CENTURY Authorized Service Stations are qualified and equipped to service and repair any piece of CENTURY apparatus.
- 3 Genuine CENTURY renewal parts are available at CENTURY Service Stations, CENTURY Parts Distributors and at the factory in St. Louis.



## Type SCH Motors

Century Type SCH, Squirrel Cage polyphase alternating current High Torque motors are ideal for refrigeration compressor applications. They bring compressors up to speed smoothly and easily under full load.

Century Type SCH motors have the high starting torque characteristic required for Refrigeration Compressors. The low starting current is desirable for automatic across the line starting.

In addition, Century builds a complete line of electric motors in a wide range of types, in sizes from 1/8 to 400 horsepower. Specify Century motors for all your electrical power requirements.

**CENTURY ELECTRIC COMPANY** • 1806 Pine Street, St. Louis 3, Missouri  
Offices and Stock Points in Principal Cities

Circle No. 8 on Reader Service Card for more information

**FEBRUARY, 1952 • COMMERCIAL REFRIGERATION**



CE-702

702

## Piggy bank payments pay off for you

Want to show prospects how to put up to 85% of their ice money in the piggy bank?

Well, with a Carrier Ice Maker they *can*. For about 15c worth of water and electricity, the Carrier Ice Maker delivers over \$1 worth of ice.

With savings like that, they can own their Ice Makers in a short time . . . from six to twenty-four months, depending upon how much ice they use. From then on, they bank the money the iceman used to take.

These are impressive facts, and we're advertising them to hotels, hospitals, taverns and restaurants . . . *your* prospects.

Not just another ice-making machine, the Carrier Ice Maker offers many unusual economies. For instance, a unique "gravity drop" system forms cubes individually.

Compact and quiet, the Carrier Ice Maker makes up to 450 lbs. of ice in just four square feet of floor space. A factory-built-in crusher takes no extra space, supplies crushed ice to a separate bin with just a turn of a switch.

All around, here's a new way of making ice that your clients must see. If you haven't got a Carrier Ice Maker to show them, write Carrier Corporation, Syracuse 1, New York.



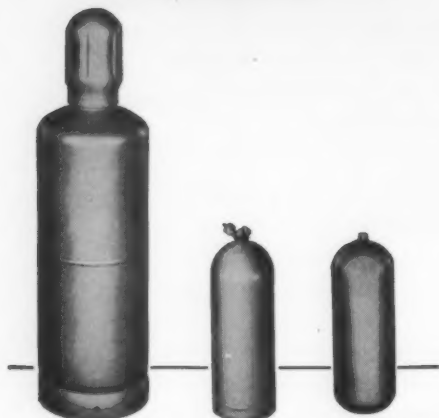
**Carrier**

AIR CONDITIONING  
REFRIGERATION  
INDUSTRIAL HEATING



The Carrier Ice Maker with crusher. Divided bin separates crushed ice from ice cubes. Handsome gun metal or white enamel. Stainless steel trim.

Circle No. 9 on Reader Service Card for more information



PREST-O-LITE cold-drawn cylinders for refrigerant gases are available in 5-lb. (rounded bottom or with foot ring), 10-lb., 25-lb., and 35-lb. sizes. You can have 50-lb., 100-lb., 150-lb., or special sizes and designs quickly made to your specifications.


You save money in the long run when you insist on the best cylinders. Fill in the coupon below and mail it today for more information about PREST-O-LITE cylinders that will meet *your* needs.

## For Refrigerant Gases Because You Get...

- ① **Uniform Wall Thickness**—Unusually close tolerances in wall thickness assure you a superior cylinder.
- ② **Long Life**—Years of extra service and added protection against denting, piercing, corrosion, and pitting result from the thicker walls and rugged construction.
- ③ **Light Weight**—You cut transportation costs because there are no extra-thick sections which only add weight without adding strength.
- ④ **Maximum Safety**—All cylinders are tested for leakage with dry air, in addition to standard safety tests.
- ⑤ **Benefit of Years of Experience**—Unsurpassed design and production come from more than 35 years of experience and skill in the development, manufacture and use of compressed gas cylinders.
- ⑥ **More Than Code Requirements**—You know PREST-O-LITE cylinders will never let you down because they're made, tested, and inspected not only in accordance with I.C.C. Specifications but also undergo many rigid tests far beyond these requirements.

### LINDE AIR PRODUCTS COMPANY

A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

30 East 42nd Street  New York 17, N. Y.

Offices in Other Principal Cities

In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto

The term "Prest-O-Lite" is a registered trademark of Union Carbide and Carbon Corporation.

LINDE AIR PRODUCTS COMPANY

30 East 42nd Street

New York 17, N. Y.

Please send full information about PREST-O-LITE cylinders for refrigerant gases.

NAME .....

COMPANY .....

ADDRESS .....

R-19

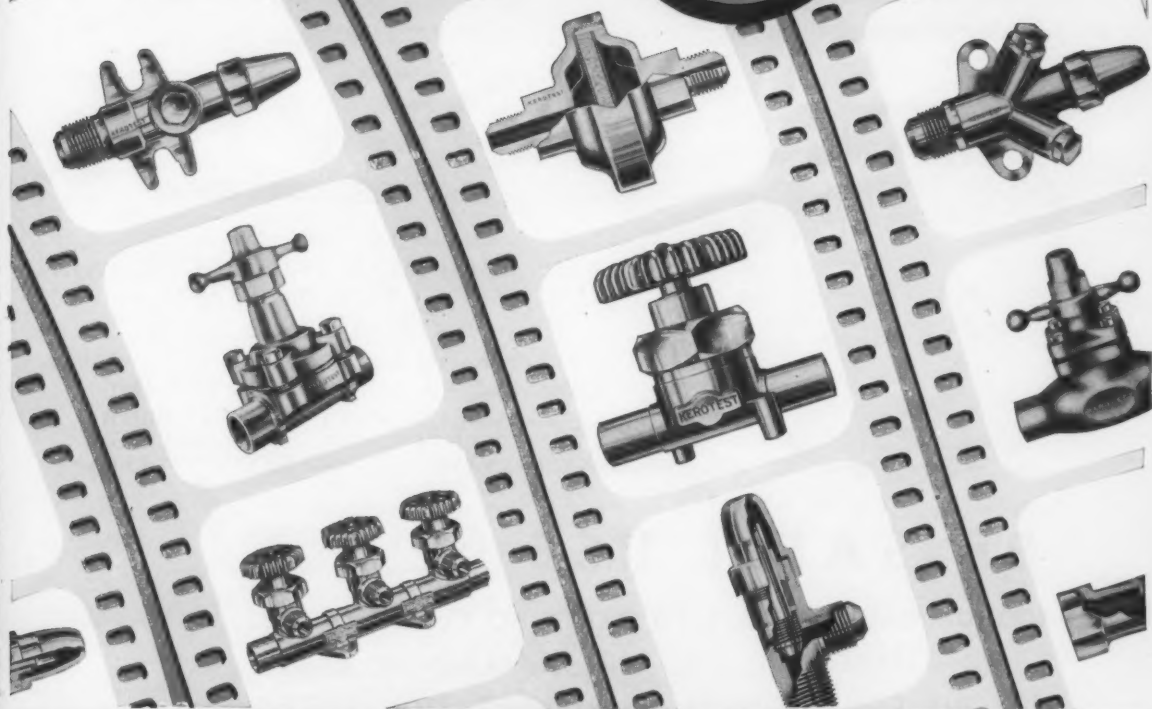
**MAIL THIS  
COUPON  
NOW!**

Circle No. 10 on Reader Service Card for more information

**FEBRUARY, 1952 • COMMERCIAL REFRIGERATION**

**ALWAYS MORE  
EXTRA VALUE FEATURES  
FOR YOUR MONEY  
IN EVERY REFRIGERATION NEED**

**KEROTEST**



*Always Extra Value*

*at No Extra Cost*

**SEE YOUR**

**KEROTEST**

**WHOLESALER**

Manufactured Exclusively by

**KEROTEST MANUFACTURING CO.**

**PITTSBURGH 22, PENNSYLVANIA**

Circle No. 11 on Reader Service Card for more information  
and **AIR CONDITIONING • FEBRUARY, 1952**

# WHY *DESTROY* Expensive Equipment by using Destructive Substances?

Chemicals that EAT their way out of Metal, Wood or Plastic Containers are injurious to the very surfaces that they are intended to treat. If a glass container should be accidentally broken, the contents could do untold damage to valuable property!



## SOLVEX

(In tablet or granular form)

**LOWERS HIGH HEAD PRESSURE QUICKLY**  
(And May Be Used While Plant Is In Operation)

**REMOVES RUST, SCALE, ALGAE**  
And Other Encrusting Matter from Condenser  
Tubes and Water Jackets in 1 to 5 Days.

**CLEANS SCALE AND CORROSION FROM**  
EVAPORATIVE CONDENSERS, BOILERS,  
HEATERS, TANKS . . . AND KEEPS 'EM CLEAN!

### **BE SAFE! USE SOLVEX!**

**ECONOMICAL AND SAFE TO CARRY TO CLEANING JOBS**

**SOLVEX Is A Very Effective CLEANING AGENT**  
**FOR AIR CONDITIONING and REFRIGERATION SYSTEMS**

Manufactured by

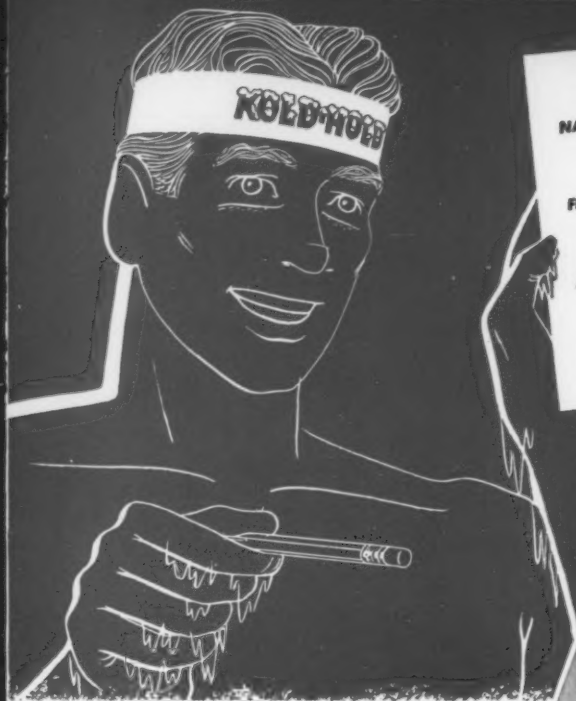
## **CHEMICAL SOLVENT COMPANY**

3005 16th STREET

BIRMINGHAM, ALABAMA

Circle No. 12 on Reader Service Card for more information





NAME \_\_\_\_\_

FIRM \_\_\_\_\_ TITLE \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_



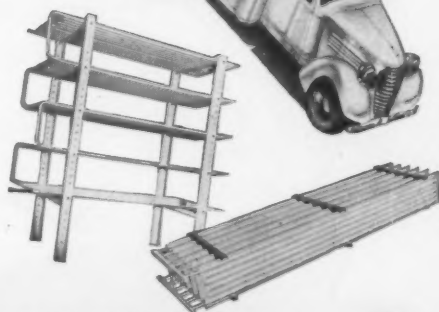
*write for the  
completely new*  
**KOLD-HOLD**  
*catalog — today*

Here is a refrigeration  
reference book that is full  
of ideas for improving

the efficiency and convenience of refrigerated rooms, cabinets and  
trucks . . . at a real savings in cost. You should see the suggestions  
it has for making your present processing, storage and cooler rooms  
more useful and effective.

Valuable every-day refrigeration information is included that simpli-  
fies the job of determining your refrigeration needs. You will find  
charts for computing plate requirements; tables of air infiltration  
loads; a list of the specific and latent heats for many perishable  
foods; and the heat leakage factors of common types of insulation.

*This new catalog is yours absolutely free. Just fill in the coupon  
above and mail it to the Kold-Hold Manufacturing Company,  
Lansing 4, Michigan.*



**KOLD-HOLD**

protects every step of the way

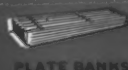
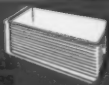


PLATE BANKS



PLATE STANDS

PREFABRICATED  
LIBERS



SERPENTINE  
EVAPORATORS



"HOLD-OVER"  
PLATES



KOLD-HOLD MANUFACTURING COMPANY

503 E. Hazel St., Lansing 4, Michigan

Circle No. 13 on Reader Service Card for more information

*"Time's the  
big factor in  
my profits!"*



**"I save it with NIBCO  
wrot fittings!"**



- NIBCO fittings heat up fast
- Solder cups fit just right every time
- Made from tubes they "take" solder exactly like the tube does
- There's always the right fitting in the NIBCO line for every part of the job. This saves joints, saves bushings

With NIBCO Wrot Fittings you can keep your bids competitive and still earn a good profit. Besides, you have the satisfaction of making sounder, better looking jobs. It's good business to specify "NIBCO" when you buy fittings.

**NIBCO**

**WROT FITTINGS FROM TUBES**

**NORTHERN INDIANA BRASS CO., 214 PLUM STREET, ELKHART, INDIANA**

Circle No. 14 on Reader Service Card for more information

*Use this extra  
selling tool to close  
more refrigeration and  
air conditioning sales*

YOU increase your cash by lowering notes receivable, you get "brand name" financing, fast credit approval and the benefit of both nationwide and local facilities with the COMMERCIAL CREDIT PLAN.

YOUR customers benefit, too, by getting immediate possession, two to three years to pay, and reasonable rates.

*Write, wire or phone  
your nearest  
COMMERCIAL CREDIT  
office today*

We can show you how many distributors and dealers are already making extra profits and progress by using the COMMERCIAL CREDIT PLAN. A phone call to our office in your city will bring complete details. Or wire or write COMMERCIAL CREDIT, 14 Light Street, Baltimore 2, Md.

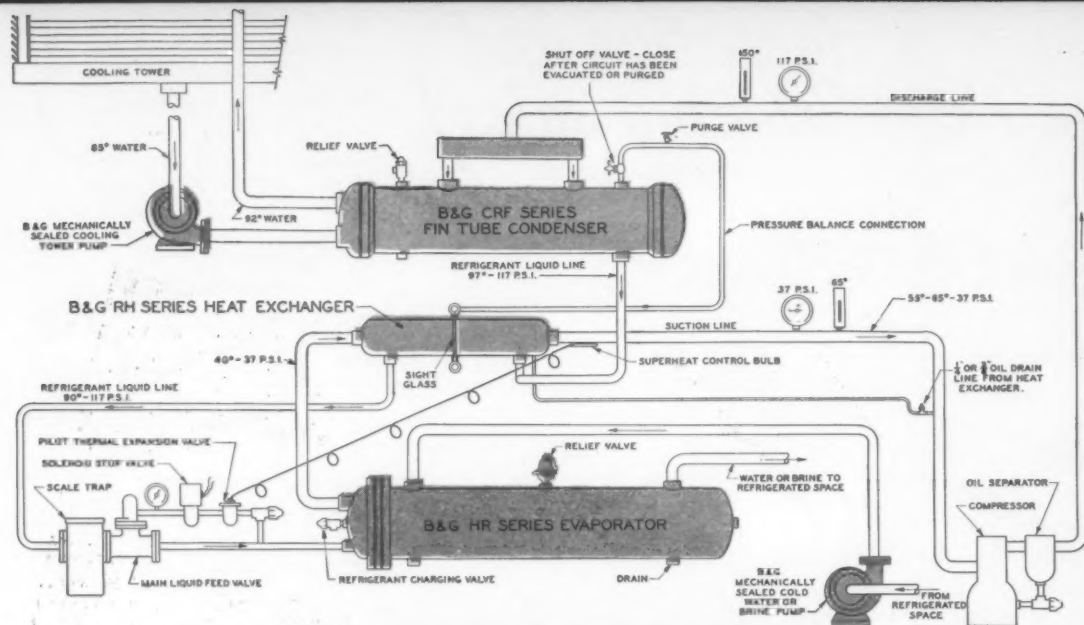
**COMMERCIAL  
CREDIT PLAN**

## **COMMERCIAL CREDIT CORPORATION**

A subsidiary of Commercial Credit Company, Baltimore  
... Capital and Surplus over \$120,000,000 ... offices  
in principal cities of the United States and Canada.

Circle No. 15 on Reader Service Card for more information

# Matched **UNITS FOR** Matchless **PERFORMANCE**



**Typical refrigeration system, using B & G Equipment**

By specifying B & G Refrigeration Equipment throughout you receive the benefits of a completely integrated installation . . . plus the advantage of a guarantee from a single manufacturer.

B & G Condensers, Evaporators and Heat Exchangers are designed to deliver maximum tonnage with minimum operating expense. These units give long, trouble-free service—because they are built right—and have proved it in the field. You'll be particularly interested in the design

of the B & G Evaporator, which prevents oil-trapping in the head passes—a warranty of more efficient and dependable performance.

As for pumps, you can spot superiority the moment you lay eyes on a B & G Series 1522 UNIBUILT. Among the many features of this pump are the leak-proof Mechanical Seals—hydraulically and dynamically balanced impellers—standard motors and interchangeable parts.

Send today for a complete file of B & G Catalogs.

**B & G Evaporators**

**B & G Condensers**

**B & G Heat Exchangers**

**B & G Series 1522 UNIBUILT Centrifugal Pumps**

**B & G**

**Hydro-Flo<sup>\*</sup>**

**REFRIGERATION EQUIPMENT**

**BELL & GOSSETT COMPANY**

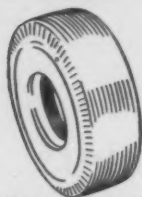
Dept. 000, Morton Grove, Ill.

Circle No. 16 on Reader Service Card for more information





PRINTING INDUSTRY



RUBBER INDUSTRY

*It's the  
**EXPERIENCE**  
that counts...*

Reliance V\*S is the result of nearly 50 years' experience in the engineering and application of Adjustable-speed Drives

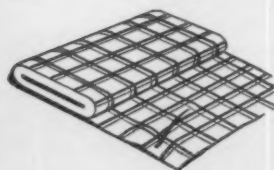
V\*S Drive provides an unlimited range of speeds from A-c. circuits. In addition, V\*S offers controlled acceleration and deceleration; slow speed for jogging, inching or creeping; fast, smooth reversal at any point desired and other specialized functions to suit particular applications. Safe, simplified control saves man hours—reduces operator fatigue. Centralized operator's station for the control of one or more drive motors can be located at any convenient point. Write today for new V\*S Drive Bulletin D-2311.



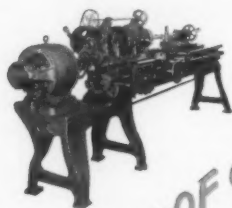
FOOD INDUSTRY



MINING INDUSTRY

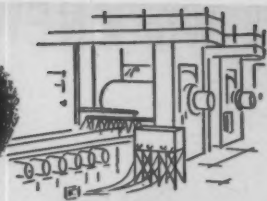


TEXTILE INDUSTRY



*PROOF of PROGRESS!*

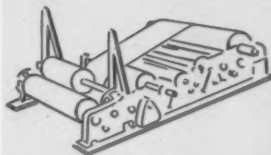
Just after the turn of the century, the lathe above made news with its adjustable-speed Reliance Armature-shifting Motor. Modern lathes (right) have built-in Reliance V\*S Drives to provide control of all functions of spindle and speeds.



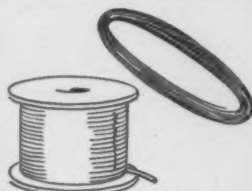
STEEL INDUSTRY



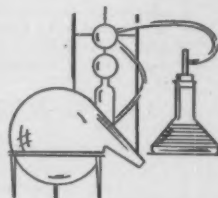
PLASTICS INDUSTRY



PAPER INDUSTRY



WIRE AND CABLE INDUSTRY



CHEMICAL INDUSTRY



METAL FABRICATING INDUSTRY

**RELIANCE ELECTRIC AND ENGINEERING CO.**

1113 Ivanhoe Road, Cleveland 10, Ohio

Sales Representatives in Principal Cities

Circle No. 17 on Reader Service Card for more information

and AIR CONDITIONING • FEBRUARY, 1952



# Win a NEW HAT in 5 minutes!



**HOW MANY** new uses  
can you suggest for  
this amazing new



## MOBILE COOLER



• Remington Mobile Cooler air conditions plane at Boeing for final assembly in field.

QUICK, PORTABLE  
"ON-THE-SPOT"  
AIR CONDITIONING  
For  
1,001 USES

### Here's All You Do!

Jot down all the new, practical uses you can think of for the Remington Mobile Cooler. Send them to T. T. Quinn, the Editor of this magazine (address listed below). He has a list of uses we've thought of. If your list includes an application that is different and practical, we will send you one new hat. It's that easy! Every person who suggests a new use wins! Send in your suggestions today. Offer closes April 1, final.



### MOBILE COOLER "SPECS" IN A NUTSHELL

**CAPACITY**—A 5 HP compressor assembly designed for continuous operation with 100% outside air. Unit cooling power 39,000 BTU per hour under normal conditions . . . greater than cooling power of 6500 pounds of ice per day.

**ELECTRICAL CHARACTERISTICS**—Electrically driven. Regularly offered for operation on 220, 440 or 208 volts, 60 cycle, 3-phase circuits. Special order for other electrical characteristics.

**AIR DUCT**—Collapsible, 25 foot long, flexible duct is supplied.

**SUGGESTED USES**—Spot cooling for aircraft industries; mobile hospitals; underground water, telephone and utility repair mains; and others.

**Send Yours in NOW!**

Send suggestions to T. T. Quinn, Commercial Refrigeration and Air Conditioning, 1240 Ontario Street, Cleveland 13, Ohio. Profit from the widespread need for this portable air conditioner by selling it now! For more detailed sales information write for Bulletin RS-36T, Remington Air Conditioning, 13 Willey St., Auburn, N. Y.



**AIR CONDITIONING**  
DIVISION OF REMINGTON CORP.  
AUBURN, N. Y.



## Wholesalers' Problems Today

By A. B. Schellenberg

(Continued from January issue)

**T**ightening up on your accounts receivable will probably actually increase your profit even though at first it might reduce your sales volume slightly. Recently I was discussing bad debt losses with a refrigeration wholesaler and learned that last year he had to charge off \$11,000 in bad accounts—so we decided to analyze those accounts.

Almost every one of the customers who went bad fit the pattern of the example I have just given you. They have been bad accounts for a year or more—always buying a little more than they paid for and slowly building up a sizable past due account. Now if this wholesaler made a profit of 5.3% on sales, his loss of \$11,000 was equivalent to the profit on sales of \$207,000.

Suppose your bad debt losses were equal to 1% of your sales and your profit on sales was 5%. Those bad debt losses then were equal to the profit on 20% of your sales. In other words, suppose you had refused to extend credit to those bad accounts and as a result lost the

Mr. Schellenberg's paper on "Problems Confronting Wholesalers at the Present Time" was presented at the annual meeting of the Refrigeration Equipment Wholesalers Association.

# IT'S COMPLETE . . . IT'S NEW . . . IT'S THE Universal Cooler

## Jobber Line for '52

### HERMETIC

Compressors and units from  $\frac{1}{8}$  to  $\frac{1}{2}$  H.P. in all usual back pressures.



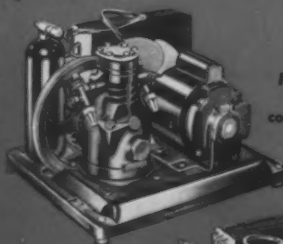
Model S88LE,  
 $\frac{1}{8}$  H.P. static  
condensing unit.

Model C2513,  
 $\frac{1}{2}$  H.P. twin  
cylinder compressor.



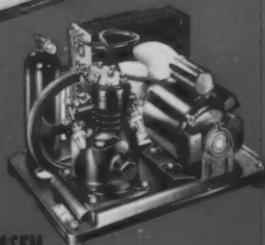
### SELF-CONTAINED

Compressors and units covering the range from  $\frac{1}{8}$  to  $\frac{1}{2}$  H.P. in all back pressures.



Model F14-13,  
 $\frac{1}{4}$  H.P.  
condensing unit.

Model F12-23,  
 $\frac{1}{8}$  H.P.  
condensing unit.



**TECUMSEH PRODUCTS**

TECUMSEH, MICH.

*Company*

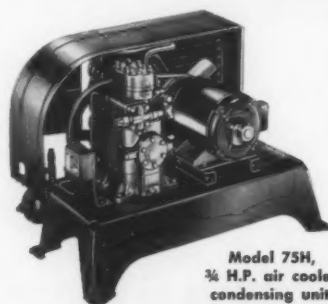
EXPORT DEPT.: 2111 WOODWARD AVE., DETROIT, MICH.

Circle No. 19 on Reader Service Card for more information

Take a close look at these units and compressors now being offered the jobber trade. Here you will find a compressor or unit to meet most refrigeration applications up to 15 H.P. With one line you can supply hermetics from  $\frac{1}{8}$  to  $\frac{1}{2}$  H.P. for domestic and commercial replacement applications, self-contained units for commercial installations up to  $\frac{3}{4}$  H.P. and a complete remote line up to 15 H.P.

Also consider the fact that this line includes all the latest advancements in refrigeration design such as: oil pumps for pressurized lubrication, high speed operation, multiport suction and discharge valves and many others too numerous to enumerate.

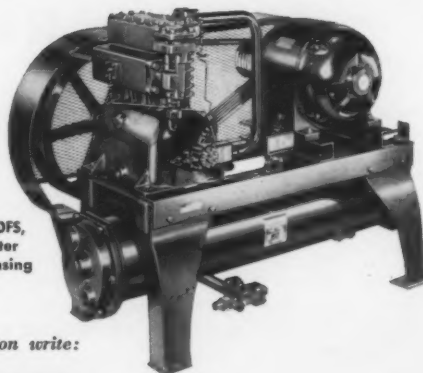
We suggest you investigate the selling features of this line and see how you can cash in with the most complete line in the industry.



Model 75H,  
 $\frac{3}{4}$  H.P. air cooled  
condensing unit.

### REMOTE

Compressors and units, either air cooled, water cooled or combination air-water cooled. Complete range of sizes from  $\frac{1}{4}$  to 15 H.P.



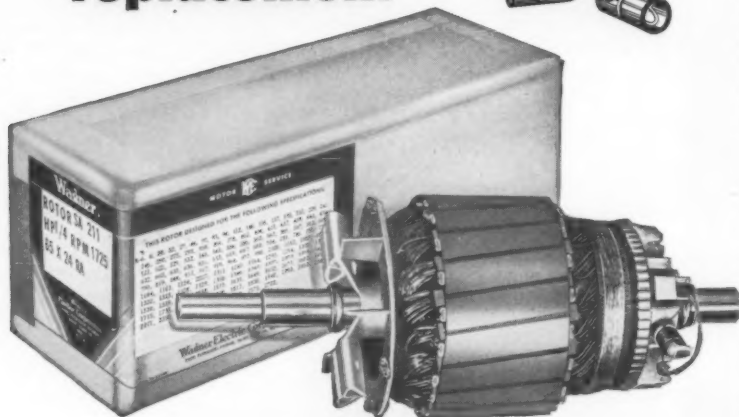
Model W1000FS,  
10 H.P. water  
cooled condensing  
unit.

For full information write:

\* The world's largest  
producer of condens-  
ing units for the re-  
frigeration industry. \*

# Genuine Joe says:

take the  
"headaches"  
out of  
rotor  
replacement



## Stock Wagner Standard Rotors

A stock of Wagner Standard Rotors simplifies armature replacement. There's no guesswork involved—Wagner K and M "spec" lists, when used with the "tell all" label on the Wagner Rotor Package, assure the *right* choice every time. Even if the motor you're repairing has a special shaft, you can easily remove the shaft from the standard armature and replace it with the special one.

Replacing burned-out rotors the Wagner way is a simple job—and it's good business, too! You move small motors out fast, and you keep your winders free for more profitable jobs. Get *your* copy of Wagner's K and M lists. Write today.



**WAGNER ELECTRIC CORPORATION**  
6442 Plymouth Ave., St. Louis 14, Mo., U. S. A.

MOTORS • BEARINGS • STANDARD ROTORS  
BRUSHES • CAPACITORS • COMMUTATORS

**650 AUTHORIZED SERVICE STATIONS  
OR PARTS DISTRIBUTORS**

Circle No. 20 on Reader Service Card for more information

sales to them—that loss in sales could amount to almost 20% of your total sales before causing any decrease in your profit.

Here are a few suggestions on controlling your accounts receivable situation. Keep a running monthly score sheet on sales vs. accounts receivable. It is often difficult to spot trends by comparing several groups of dollar figures—it's a lot easier if you have just one index figure a month to compare with previous months.

### Analyze "Slow Pays"

Divide the month-end accounts receivable total by the month's sales and use the answer as your monthly signpost. If the ratio of receivables to sales was 1.50 in August, 1.58 in September, and 1.85 last month you had better give some attention to your collections.

Another suggestion—pick out those customers who are responsible for most of your past due accounts—analyze their purchases and payments and determine your average investment in their business. Armed with this simple and effective picture you can very often work a slow paying customer into a sound buying relationship. You will probably find that your customer has never thought much about it and didn't realize that you were financing him without interest and without sharing in the profits.

### Limit Your Risks

Perhaps a series of short term notes and a limited open account will help those delinquent to pay you off and get on a current basis. Place limits on your slow accounts and stick to them. Limit your risk and if these customers exceed the open account limit, put them on a COD basis.

If you present a clear case, show appreciation for his patronage, and evidence understanding and willingness to cooperate within the bounds of good business—the average customer will not get mad and take his business elsewhere but rather he will respect you for your actions.

So much for the accounts receivable phase of our working capital problem. Just a few words about inventories—the largest consumer of working capital. The inventory build-

*Continued on page 55*

To give you  
PEAK PERFORMANCE  
ON ALL INSTALLATIONS...

# Sporlan

**pioneered  
SELECTIVE  
CHARGES**

on Thermostatic Expansion Valves

**"C" CHARGE**  
for  
SUCTION TEMPERATURES  
ABOVE ZERO

**"Z" CHARGE**  
for  
SUCTION TEMPERATURES  
BELOW ZERO

*plus* - **"G" Charge** for COMFORT COOLING  
**"X" Charge** for EXTREMELY LOW TEMPERATURES

**SPORLAN FIRST** to introduce "C" and "Z" selective charges for thermostatic expansion valves...1934...today the symbols of the industry.

**SPORLAN FIRST** with Flow-Master element to minimize hunting in air conditioning systems...1948...Sporlan exclusive today.

**SPORLAN FIRST** with welded thermostatic element with stainless steel diaphragm...1934...Prime contribution to Peak Performance of Sporlan thermostatic expansion valves throughout the years.

Easy accessibility of parts has always been a feature of all Sporlan Valves. It means easy take-a-part for inspection and cleaning.

*and Now...*

**SPORLAN LEADS THE WAY AGAIN WITH THE NEW SPORLAN TYPE-W** The First 100 Ton Direct Acting Thermostatic Expansion Valve for Freon-12 Incorporating ALL the Sporlan Proven Features

BE PROGRESSIVE WITH THE LEADER...

*For Confidence and*

PEAK PERFORMANCE *buy* SPORLAN

## SPORLAN VALVE COMPANY

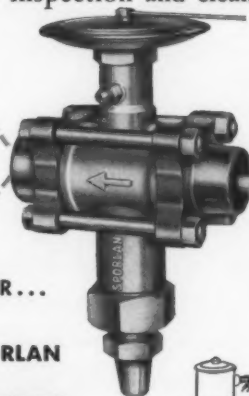
7525 SUSSEX AVE. ST. LOUIS 17, MO.

Export Dept. 89 Broad Street, New York 4, N. Y.

*See Your SPORLAN WHOLESALER Today!*

Circle No. 21 on Reader Service Card for more information

and AIR CONDITIONING • FEBRUARY, 1952



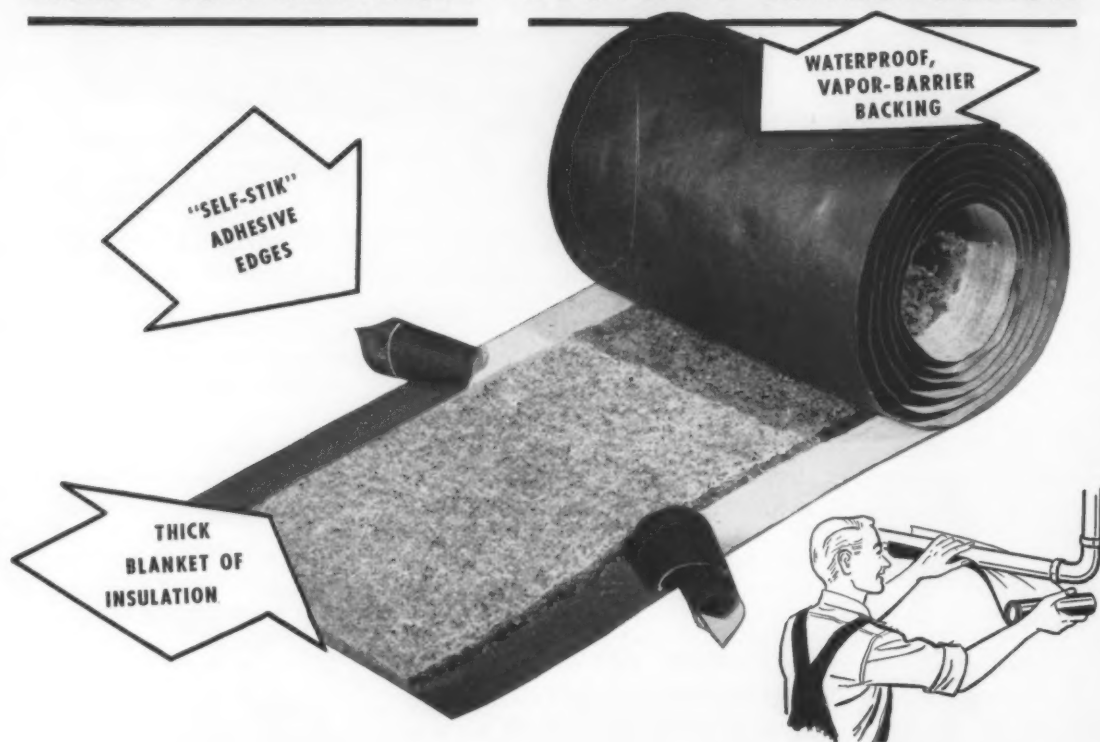
*Buy*  
**SPORLAN**  
RIGHT DOWN  
THE LINE



# MYSTIK

## Self-Stik DRI-PIPE INSULATION

### Holds Cold and Heat • Prevents Condensation



MYSTIK DRI-PIPE—the insulation with “self-stik” edges—goes on fast, saves time and money on installation. Ideal for low-temperature applications—on cold water lines, cold air ducts, refrigeration lines. Holds temperatures, prevents

condensation and dripping, eliminates icing and frosting on refrigeration lines. Also has extensive other cost-cutting insulation uses—on warm water lines, warm air ducts and for sound deadening. Ask your supplier or . . .

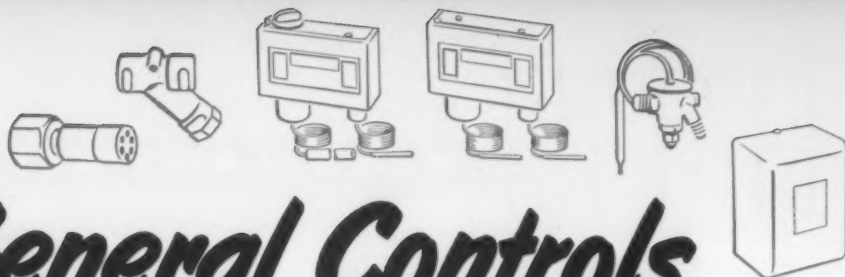
**WRITE NOW** for free sample of MYSTIK Self-Stik DRI-PIPE Insulation to Mystik Adhesive Products, 2662 N. Kildare, Chicago 39, Ill.

MYSTIK CLOTH TAPES • MYSTIK PAPER MASKING TAPES • MYSTIK SPRA-MASK • MYSTIK PROTECTO-MASK • MYSTIK SAND-BLAST

Circle No. 22 on Reader Service Card for more information

FEBRUARY, 1952 • COMMERCIAL REFRIGERATION





# General Controls

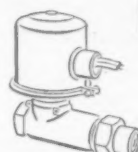
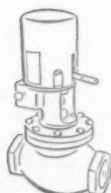
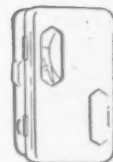
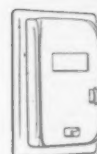
**FOR REFRIGERATION AND AIR CONDITIONING**



**V-200 SERIES**  
**SIX VALVES**  
**IN ONE!**

*Thermostatic Expansion  
Valves...For High or Low  
Temperature Application*

**FREON**  
**METHYL-CHLORIDE**  
**SULPHUR DIOXIDE**



**FEATURED IN A  
FAMILY OF FAVORITES**

V-200 Valves control the flow of liquid refrigerants into cooling units. Positive in shut-off, they are simple in design and respond to the slightest temperature changes. Adjustable orifice cartridge makes it possible for these valves to be adjusted to any one of six capacities, without interchanging the valve itself. Semi-liquid charged, V-200's operate on high or low back pressure and corresponding temperatures and are available in 1/2, 1, 2, 3 1/2 and 5 ton capacities.

## GENERAL CONTROLS

801 ALLEN AVENUE GLENDALE 1, CALIFORNIA

*Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls*

FACTORY BRANCHES: Baltimore 5, Birmingham 3, Boston 16, Buffalo 3, Chicago 5, Cleveland 15, Columbus 15, Dallas 2, Denver 4, Detroit 21, El Paso, Glendale 1, Houston 6, Indianapolis 4, Kansas City 2, Milwaukee 3, Minneapolis 2, Newark 6, New Orleans, New York 17, Omaha 2, Philadelphia 23, Pittsburgh 22, St. Louis 3, San Francisco 7, Seattle 1, Tulsa 6, Washington 6, D. C.  
DISTRIBUTORS IN PRINCIPAL CITIES

Circle No. 23 on Reader Service Card for more information

**and AIR CONDITIONING • FEBRUARY, 1952**



**THE SCARCITY OF COPPER**, a situation that most of us in this particular industry are acutely conscious of right now, definitely won't be a permanent one, the nation's primary copper producers recently told National Production Authority officials. In fact, these authorities say, the copper supply may be relatively better than the aluminum supply in two or three years, because of the probable aluminum demands of the aircraft production program. A spokesman expressed the belief that in two years those concerned with the situation will be wondering what to do with copper instead of worrying about allocations. NPA officials said that approximately 27% of the 125,000 tons of copper a month expected in the first quarter of 1952 would go for the military program.

**MILITARY LOAD ON THE ECONOMY** of the country is indicated in a recent report by the Council of Economic Advisers which shows that at the end of 1950, the Armed Forces were taking 8% of all the goods and services currently produced in the United States. By the end of 1951, the proportion was approaching 15%. By the end of 1952, the peak of military procurement is projected to take about 20%. By comparison, the peak of World War II procurement was reached in the last quarter of 1944, when it took 45% of all the nation produced.

**NO WAR WITH RUSSIA**, and a better year for business than 1951 are the key predictions for 1952 made by the Research Institute of America to its top management members in more than 30,000 companies throughout the country. Although tautness will grow in Yugoslavia in the spring, this and other world tensions will not explode during the next 12 months, the Institute advised in its year-end report to members. It anticipates a continuing uptrend in business in 1952, with defense spending climbing regardless of a Korean truce or any new conciliatory measures by the Russians. Prices will wiggle upward 3 to 5%, the Institute predicts; building will be below the 1951 average, but only slightly; wage costs will rise; the local tax load will increase, and the excess profits tax will be eased.

**INTEREST IN DOUGH RETARDING** is on the increase in England, and a number of installations have been made recently incorporating various ideas on the subject, the magazine *World Refrigeration* reports. The fact that bakers in Britain are again campaigning for abolition of night baking should make this subject even more timely, the magazine says. Bakers resent night work and want normal day working hours. With dough retarding equipment, doughs mixed the previous night can be used when workers come in the following morning.

**HIGH-ENERGY ELECTRON RAYS** have far-reaching potentialities in the field of food sterilization, Dr. Ernest E. Charlton, head of the X-Ray Section of the General Electric Research Laboratory, said in an address recently before the Fourth District Branch of the Medical Society of the State of New York. In laboratory experiments, meat, fresh beans, grains, blueberries, strawberries, peaches, raisins, bread and honey have been sterilized in this way, Dr. Charlton said. "Even sterilization of the surface of some food stuffs may have far-reaching implications," he said. "By extending, even for a few days, the time that perishable foodstuffs can be stored or transported, without loss of quality, the economics and utilization of these products can be vastly changed."

*here's  
your answer*

## TO REFRIGERATION CONTROL PROBLEMS!

Tough defrosting job? Water-cooled jobs that are "mean" to handle? Want to control multiple refrigeration systems with one switch... or control polyphase motors without line starters? The answer to these and other control problems is... PENN.

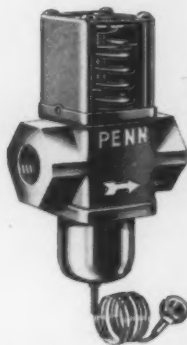
Yes... just like in most other products... there is also a big difference in automatic controls. And once you try PENN controls you'll learn that their performance *on the job* is the strongest recommendation for using PENN on every commercial refrigeration system.

In the complete PENN line, there is a type and model to fit your exact needs... a few types are illustrated here, there are many more. Take the first step in trying these better controls. Get your free copy of PENN's condensed catalog and price list. Ask your wholesaler or write **Penn Electric Switch Co., Goshen, Ind.** Export Division: 13 E. 40th Street, New York 16, U.S.A. In Canada: Penn Controls, Ltd., Toronto, Ont.



Penn Magnetic Line Starters are built in NEMA Sizes 0, 1 and 1½ and are available as open-type models for control panels or with General Purpose enclosures.

Series 246 Water Valves, zoned to keep water out of sliding parts, are built in threaded and flanged styles for all refrigerants and in sizes from ½" to 2½".



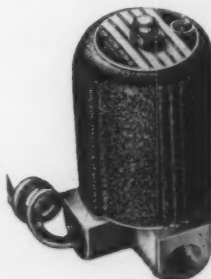
Series 275 Oil Protection Control with built-in Time Delay Switch for pressure-lubricated compressors prevents damage from low or slow pickup of oil pressure.


Penn Series 325 Time-Pressure Defroster varies automatically the defrost period to satisfy load conditions... eliminates seasonal adjustments... avoids unnecessary shut-down time.



Penn Series 270 temperature and pressure controls have 2-pole construction and a direct reading calibrated scale which shows both cut-in and cut-out points.

Penn Series 221 Solenoid Valves are direct acting and may be used with all non-corrosive refrigerants as well as for water, oil or air.



**PENN**  **AUTOMATIC CONTROLS**

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES  
Circle No. 24 on Reader Service Card for more information



Cutaway view of  
General Electric  
CW3 Compressor



# THE COMPRESSOR WITH THE 1,000,000 UNIT EXPERIENCE



Over the last twenty-five years, General Electric has placed in operation more than a million machines in commercial applications. From this wealth of experience, General Electric engineers designed a compressor whose power-thrifty, dependable performance has proved a real contribution to the refrigeration industry.

## QUIET, SMOOTH ACTION

- A** Large gas passages cut gas noise.
- B** No slap or click as valves open.
- C** Counterbalanced crankshaft.
- D** No connecting rod splash.

## LESS WASTE PISTON EFFORT

- E** Low clearance at top of stroke.
- F** Thin valve plate.
- G** Wide-opening, quick-acting valves.
- H** Minimum clearance between piston and cylinder walls.

## LONG, TROUBLE-FREE LIFE

- I** Eccentric, rotary oil pump.
- J** Shaft seal lubricated under pressure and by centrifugal action.
- K** Large non-clog oil passages.
- L** Constant oil flow to all friction surfaces.
- M** Pressure-regulated oil supply.
- N** Sight glass check for oil level and flow.

## EASY TO BUY, EASY TO SELL, EASY TO INSTALL

Over-the-counter service from more than 91 G-E Refrigeration Equipment Wholesalers and Renewal Parts Depots saves time and effort. Greater sales and profits are yours with the widespread acceptance of General Electric products with your customers. And you will find the compact size and readily accessible service valves of G-E units mean more elbow room and quicker, easier installations.

*WRITE  
for  
FREE Data*  
←

General Electric Company, Section CR-2  
Air Conditioning Division, Bloomfield, New Jersey

Tell me the location of the G-E Parts Depot nearest me ☐ Please send me literature on G-E Open Units ☐ G-E Hermetics ☐ G-E Renewal Parts ☐

NAME .....

ADDRESS .....

CITY..... ZONE..... STATE.....

**GENERAL  ELECTRIC**





Aaron Lee, Miami refrigeration contractor, has successfully modified the traditional "foot in the door" policy by concentrating on a single product—the vertical freezer—as his company's . . .

## SPEARHEAD FOR SALES

**W**HEN a merchant with a "free" freezer from an ice cream company sends it back to buy a vertical storage freezer of his own, that's news—and there has to be a reason for it!

"So we give the customer plenty of reasons," Aaron Lee, Gray Products Corp., Miami, Florida, points out. "When we make a call, we don't wonder whether the storekeeper wants a walk-in freezer, reach-in freezer, or counter freezer—we go in to sell him an upright storage freezer with shelves".

Competition of two kinds has forced a more positive approach in

selling commercial refrigeration in the Miami area, he explains.

"First, there are all kinds of companies selling various refrigeration equipment and service," he states, "and, second, many local dairies, ice cream, frozen food and similar companies are supplying store owners with free reach-in boxes as a means of keeping their products prominently in front of the public."

Only a specialty item could drive a wedge into such a market, Lee felt. After exploring a number of product possibilities, the vertical storage freezer was picked for a sales spearhead. It's not a price leader, Lee is

quick to point out; it simply keeps the salesman's foot in the door.

Obviously, a good opener should have three universalizing qualities: it should be practical and new, or present some tangible improvements to the market; it must be suitable for, or adaptable to nearly every type of store, or wherever food is handled; and it should be easily within the financial range of the average merchant.

Four salesmen of Gray Products Corp., took the upright freezer and began to call on prospective customers. Their results have exceeded their employer's fondest expectations.

Every sale is different.

A restaurant with hundreds of appetizers to prepare in advance, required more shelf space. Aaron Lee's shop mechanics installed additional shelves between the factory-built freezer plates. A similar arrangement worked well for French pastries and bakery products.

### Does Double Duty

The small-store proprietor who returned his free chest-type ice cream freezer to buy the vertical storage freezer, did so because the shelf arrangement offered him double duty. At night, without hazard to delicate ice cream packages, he could preserve such chops and meat patties as were left over each day. During store hours, with the meats removed, ice cream was just as available to help-yourself customers, and presented a more orderly appearance.

One use of the upright freezer in small bakeries was to serve as a dough retarder. It was shown in some instances that night baking could be done away with, and that the dough could be mixed in large batches and frozen for ready use over an extended period of time. Frozen pies and cakes and cream products could be stored in larger quantities in less space in the upright freezer. This point sold upright freezers in retail bakeries as well as in groceries.

### Speeds Food Service

Another advantage of the upright storage freezer is that it can be moved into some tight, restricted places, close at hand to the work being done. This was the case in the Paramount Restaurant, a fast-service food dispensary, whose serving speed depends on pre-preparation of many items that would spoil unless refrigerated. Thousands of these food units have to be prepared below the service floor. The upright freezer keeps them there until called for at the service window.

In each case, "painless" payments grease the sale. Most of the vertical storage freezers are sold on a coin meter plan and paid for in eighteen months.

"Our salesmen go in on restaurants, hotels, bakeries, small food stores, fish and bait shops and a host of other establishments to sell an up-

*Continued on page 56*



**NEW MARKET** for comfort cooling was pioneered by the management of this Oklahoma City parking lot when it air conditioned the lot's offices.

## Something New Under the Sun

**C**YNICS who persist in saying that "there's nothing new under the sun" just haven't visited the Up-town parking lot in Oklahoma City, Okla. For here the owners of the lot, the James Hotel Corp., have pioneered a new application of air conditioning by providing comfort cooling for the lot's offices.

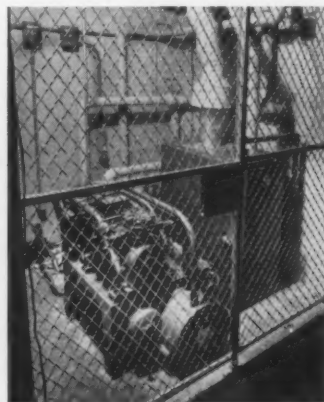
Housed in a low, flat building constantly exposed to the broiling rays of the summer sun, the offices of the lot literally became a "sweat box" during extended sultry spells. Now, "them days are gone forever", thanks to the mechanical cooling system designed and engineered by Hudgins, Thompson, Ball & Associates, architects, and by Collins & Gould, engineers, all of Oklahoma City.

Chilled water is circulated for summer air conditioning and forced air convectors are used for the outlet of the conditioned air. Equipment comprising the system includes an Acme "Flow-Cold" liquid chiller and cooling tower.

Design conditions for the installation were 100 degrees d.b. and 78 degrees w.b. outdoors, and 80 degrees d.b. and 67 degrees w.b. indoors. The load is approximately 3 tons.



**COOLING TOWER** for the parking lot installation was located on the building's upper level.



**LIQUID CHILLER** serves as the system's "heart" by circulating cooled water for conditioning.

# 7 different ways you can LOWER YOUR TAX BILL

By Roy Kammerman

**SO YOU'D** like to pay lower taxes?

Well, it's easier than you think! There are literally hundreds of occasions in the conduct of a commercial refrigeration and air conditioning business where a transaction in one form will be taxed higher than another transaction which achieves exactly the same results in a slightly different form.

Take the case of a son working for his father.

Joe Brown's 17 year-old son worked vacations and Saturdays in his father's store. Brown looked into the tax status of such a relationship. Then he made the following salary arrangement.

He paid his son approximately the same wages he would have paid help with similar experience, but he was careful to keep the annual total *under* \$600.

As a result, Brown enjoyed a double deduction. He deducted the wages he had paid his son as a business expense. Then, since he had paid his son *less than* \$600, he was able to take a \$600 exemption for him as a dependent!

The son—having made under \$600—did not have to pay any income tax on his wages. However, he did file a return in order to collect the wages withheld.

## Watch Dependents' Paychecks Closely

If Brown had paid his son \$600 or more he would no longer have been able to list him as a dependent. Losing that \$600 exemption, in Brown's case, would have

cost him over \$100 in taxes.

You may miss equally good opportunities to make sizeable tax savings unless you do two things: plan in advance, and have a good accounting system.

On the accounting front, the best assistance available is

---

*Prepared in cooperation with the American Institute of Accountants, the national society of certified public accountants.*

that of the certified public accountant. He has passed a difficult state examination and has satisfied state officials that he has the experience and skill necessary to help you. Acquire the good habit of asking his advice. When legal problems are involved, consult with an attorney.

*One word of caution: don't attempt to plan a transaction with any of these cases as exact models. A slight variation in your case which might seem unimportant to you might completely alter your tax status. To be safe, you should get professional advice.*

## Separate Repairs From Improvements

A commercial refrigeration dealer named Jones decided to make some alterations in his store.

He asked a contractor to estimate on the following

work: repairing bad spots on the roof, replacing the coal furnace with oil, relocating some steam pipes, installing a modern electrical wiring system, mending broken plaster, painting the walls and ceilings, and building a new store front. The estimate was \$10,000.

Jones believed he could deduct the entire amount from taxable income under the heading "repairs." But before going ahead, he took time to look up the tax facts. It was well he did. He saved himself a deduction of \$4,000.

This is how he did it:

Cost of repairs is deductible from taxable income. Cost of *improvements* is not; you are simply allowed to take annual depreciation on improvements. But if repairs are made as part of a general improvement plan, or if separate records of repairs are not kept, *they may be considered improvements and not deductible!*

Therefore, Jones' first job was to decide which were improvements and which were repairs. Repairs are considered by the Treasury to be steps necessary to keep property in reasonable repair without adding to its value.

In this case, the Treasury would accept as repairs:

mending the bad spots on the roof, relocating the steam pipes, mending the broken plaster, and painting the walls and ceilings. All the other items would be classed as improvements.

Jones had two separate contracts drawn up—one for repairs, one for improvements. The repairs amounted to \$4,000, which Jones was able to deduct in full on his return. In his case, this was a saving of almost \$1,000 in actual taxes.

### **Don't Replace Insured Losses Prematurely**

Jack Green's store burned to the ground. It was insured for \$50,000.

Rebuilding would cost about \$50,000. Instead of rebuilding, Green decided to buy a nearby building for \$50,000.

Payment of the insurance was delayed due to a technicality, but Green thought he might as well buy the new building immediately.

He stopped just in time to save himself several thousand dollars in taxes!

His tax liability would have resulted from a little known fact. For tax purposes he had been depreciating his building every year, until at the time of the fire its depreciated value was only \$20,000. The \$50,000 insurance, therefore, represented a book gain of \$30,000 over the depreciated value.

If he had gone ahead as planned, he would have had to pay a tax on that book gain of \$30,000—even though he had made no actual gain.

He would have failed to meet an important requirement necessary to avoid a taxable gain on insurance proceeds: namely, that you must buy and pay for new property after—never before—you receive the insurance.

It is also usually a good idea to put the insurance money in a separate bank account, so that you can definitely trace all the proceeds of the awards into payments for the property purchased.

These same rules apply to all casualty loss proceeds: storm, auto, wind, etc. If you have a casualty loss, remember that Jack Green, devoting only a couple of hours to finding out the tax facts, saved himself several thousand dollars in actual taxes.

### **Make Depreciation Cover True Costs**

When you buy assets (machines, buildings, fixtures, etc.) which do not wear out within a year, you are allowed to recover the cost by deducting annually a portion

of the cost from your income over what is considered the life of the asset. The allocation of cost over the estimated useful life is known as depreciation.

Depreciation is complicated. For instance, the first step in figuring depreciation is to determine the cost of the item. But is the cost what you paid for it? Not necessarily. It may be cost, *plus* installation, *plus* freight, *plus* improvements, *plus* carrying charges, *plus* whatever other costs are proper.

The Treasury publishes depreciation rates for new equipment, but it does not list them for second-hand equipment. Your regular accountant can help you to determine a rate of depreciation on second-hand equipment

which will be acceptable to the Treasury and fair to you.

Getting maximum credit for depreciation depends upon having the right records. On large items, such as trucks, counters, cash registers and the like, it is best to keep separate records.

### **Compute Inventory To Your Advantage**

Proper computation of your inventory may save you hundreds of dollars in taxes. The Treasury allows you several alternatives. However, the effect of any one of them on your business can be figured only by an expert.

An attempt to illustrate here a specific way of tax saving through one inventory method or another might be misleading. However, with the trend towards rising prices, commercial refrigeration and air conditioning dealers may find it advantageous to compute their inventories under the method known as LIFO (last in, first out). Ask your accountant about LIFO.

### **Don't Pay Tax on Unpaid Installments**

You probably report your income on the accrual basis. This means that you report all expenses you incur during the year whether you have actually paid them or not, and

that you report as income all money owed you whether you have collected it or not.

If you do much business on the installment plan, this might put you in the position of paying income tax on all the unpaid installments owed you. Under certain conditions, this could be a serious financial handicap.

However, you can report your installment sales on the installment sales method. Using this method, you report only the gross profit you have actually received from your installment sales. You continue, however, to deduct all expenses in the year in which they were incurred.

The installment sales method may not be advisable if you are a partnership or a sole proprietor. The death of the proprietor or any partner would dissolve the business, and cause all unpaid installments to be taxed in the year of the dissolution.

Here is another instance where the proper accounting can ease your tax burden. Ask your accountant whether the installment basis is best for you.

### **Keep Ample Records—And Keep Them Right**

No commercial refrigeration and air conditioning business can be operated efficiently without proper records. They are equally important to tax economy. You

need to have records to support your deductions.

Your accountant can tell you what records you should have. He can set up a combination of records which not only will comply with Treasury regulations, but will help you to operate your business at maximum efficiency.

If your present record system is not adequate, ask your certified public accountant about installing a new one. He will show you how to make entries so that, unless your volume is large, you will not need to employ a bookkeeper. You will have to spend only a few hours a month making entries. Like time spent on tax control, those hours spent with your records will be rewarding.





**LEFT**—Blower coil mounted at the right retards the growth of plants stored on the three-tiered racks along each side of this Decatur, Ill., greenhouse. Ventilating fan at the rear assures proper circulation of air.

**BELOW**—This 1½-hp water cooled condensing unit provides the cooling for this special refrigerated building. Concrete block walls are insulated with 4 inches of cork.



Refrigeration plays a stellar role in the profit story of the . . .

## Don't FLOWERS THAT A BLOOM IN THE SPRING

**M**ODERN principles of refrigeration are being used to create artificial seasons for the benefit of commercial florists.

A recent experiment by Evans Refrigeration Co. and Daut Bros., florists of Decatur, Ill., has proved that refrigeration can save time and money for the florist and open a large new field for commercial refrigeration firms.

The Decatur test, now accepted by florists as a profitable and successful part of plant development, uses the principles of refrigeration by housing plants, shrubs and bulbs in a cooling building to control their growth and development for seasonal markets.

Florists have long known that cool weather retards the development and growth of plants, shrubs and bulbs. However, they have been forced to use old fashioned hand methods that were costly and slow. Commercial florists have had to watch seasons, and to bring their plants along to meet the seasons. In many instances

great losses were encountered because of their inability to meet buying seasons with adequate plants for the market. In other instances the florist has been unable to retard his plants so that they would not outgrow the season. The plants would mature in advance of the season and would have to be marked off as a loss.

Modern refrigeration takes the guesswork out of the seasonal market problem. By means of a cooling process, the bulbs, shrubs and plants can be held back or forced forward in their development, so that the florist, in effect, creates his own controlled growing seasons to meet market demands.

Some months ago, Evans Refrigeration Co. and Daut Bros. Florists constructed a large cooling building where plants could be stored in controlled temperatures.

This building was 45 feet long, 20 feet wide and 8 feet high. Two thirds of the building was below ground level; this was planned so that advantage could be taken of the ground

temperature. The sidewalls were built of concrete blocks and insulated with 4 inches of cork. Inside there are three rows of tiered tables, each tier holding potted plants, roses, shrubs, etc.

Two Krack engineered, model F 750 blower coils were used, along with a 1½ hp Universal water cooled condensing unit. Ventilating fans were installed at each end of the cooling building to permit proper circulation of the air. By the use of thermostats mounted in the building, a constant temperature of 32 F is maintained. In such temperatures bulbs, shrubs and plants will lie dormant. At the approach of each growing season the dormant bulbs are removed and placed in warm greenhouses, enabling the florist to start the growth of the plants at a time planned so that they will mature at the peak market period.

Commercial refrigeration men see the result of the Decatur experiment opening a new field for sales possi-

*Continued on page 56*



you get  
**double  
 protection**  
 against moisture with

**DRYSEAL**  
 REFRIGERATION TUBE



● Moisture hasn't a chance against Dryseal. It's double crimped that's why. A special, precise, mechanical double-crimp seal made at each end of the tube when it is manufactured keeps the inside dry as a bone and free from dirt. And, because of the way the seal is made, the diameter of the tube does not change. This permits it to pass through any opening large enough for the tube itself.

Dryseal is easy as pie to handle. Being dead-soft it

is easily bent with the hands. It is this same soft temper, and the ductility of the copper used, that makes Dryseal easy to flare for compression fittings without any danger of splitting. Economical tube sizes range from  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D.

And, for your greater convenience we have just recently brought out Dryseal in a nifty-50 one-coil carton. This carton, which has been attractively designed for easy identification in stock, contains one 50-foot coil of Dryseal... is easier to handle, light weight, economical.

**NOW in the  
 NIFTY-50  
 one-coil  
 carton!**



**REVERE**  
 COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801  
 230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.;  
 Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.—  
 Sales Offices in Principal Cities, Distributors Everywhere

SEE "MEET THE PRESS" ON NBC TELEVISION EVERY SUNDAY  
 for more information

**This  
FULL-PAGE  
ADVERTISEMENT**

is appearing in:

CHAIN STORE AGE . . . FEB.  
QUICK FROZEN FOODS . FEB.  
NATIONAL  
GROCERS' BULLETIN . . FEB.  
FOOD TOPICS . . . . . 1/21  
SUPERMARKET  
MERCHANDISING . . . FEB.

and as a

**TWO-PAGE  
SPREAD**

in:

MEAT MERCHANDISING . FEB.  
PROGRESSIVE GROCER . . FEB.



**How to Seal  
a Good Bargain!**

For best service that sells, you need to give your customers a clear, clean view of your frozen foods. And that's what you get when you buy a refrigerated case equipped with Thermopane's insulating glass. Thermopane's famous exclusive Bondermantic Seal is the secret. This metal seal is "welded" to the glass to keep the clean, clear insulating air between the panes desert dry.

Air that stays dry keeps the inside surfaces of the glass absolutely free of film and fog. So you'll get better sell service with a better view of your frozen foods. Next time you buy a case, make sure it has the Bondermantic Seal—you'll find the name Thermopane imprinted on it. Libbey-Owens-Ford Glass Company, 3012 Nicholas Building, Toledo 3, Ohio.



**Thermopane**

LOOK FOR THE NAME ON THE SEAL BETWEEN THE PANEES

FOR BETTER WHICH SPECIFY THERMOPANE MADE WITH POLYMER PLATE GLASS



# A GOOD BARGAIN FOR YOU, TOO!

Practically every day we're telling your customers about Thermopane\* insulating glass and its exclusive Bondermantic Seal\* in refrigerated cases.

So tie in. Help prove the superiority of your cases by pointing out the Thermopane name on

the metal-to-glass seal between the panes. Show ads like the one above to your customers in case they missed it. We'll send you reprints if you'd like them.

Write Libbey-Owens-Ford Glass Co., 2922 Nicholas Bldg., Toledo 3, Ohio.

\*®

# MOTOR TROUBLES? .. STOP GUESSING!

*advises HAROLD C. BODINE,  
chief engineer, Bodine Electric Co.*

**W**HEN a fractional horsepower motor goes bad, easy-to-detect symptoms often will indicate exactly what is wrong. However, where general types of trouble have similar symptoms, it becomes necessary to check each possible cause separately.

with the troubleshooter, but it is natural to make the simplest ones first. For example, when a motor fails to start, one first inspects the motor connections, since this is an easy and simple thing to do.

In diagnosing troubles, a combination of symptoms often will give a definite clue to the source of the trouble, and hence eliminate other possibilities. For example, in the case just cited of a motor that will not start, if heating occurs, it offers the suggestion that a short or ground exists in one of the windings and eliminates the

## WHAT TO LOOK FOR IF MOTOR TROUBLES DEVELOP

Motor Type	A. C. SINGLE PHASE				A.C. POLYPHASE (2 or 3 phase)	BRUSH TYPE (Universal, Series, Shunt or Compound)
	SPLIT PHASE	CAPACITOR START	CAPACITOR START & RUN	SHADED POLE		
TROUBLE		*PROBABLE CAUSES				
Will not start	1, 2, 3, 5	1, 2, 3, 4, 5	1, 2, 4, 7, 17	1, 2, 4, 7, 16, 17	1, 2, 9	1, 2, 15
Will not always start, even with no load, but will run in either direction when started manually.	3, 5, 9	3, 4, 5, 9	4, 9		9	
Starts, but heats rapidly.	6, 8	6, 8				
Starts, but runs too hot.	8	8	8	8	8	8
Will not start, but will run in either direction when started manually—over heats.	3, 8, 9	3, 4, 8, 9	4, 8, 9		8, 9	
Sluggish—sparks severely at the brushes.						10,11,12,13,14
Abnormally high speed—sparks severely at the brushes.						15
Reduction in power—motor gets too hot.	8, 16, 17	8, 16, 17	8, 16, 17	8, 16, 17	8, 16, 17	13, 16, 17
Motor blows fuse, or will not stop when switch is turned to off position.	8, 18	8, 18	8, 18	8, 18	8, 18	18, 19
Jerky operation—severe vibration.						10,11,12,13,19

### \*PROBABLE CAUSES

1. Open in connection to line.
2. Open circuit in motor winding.
3. Contacts of centrifugal switch not closed.
4. Defective capacitor.
5. Starting winding open.
6. Centrifugal starting switch not opening.
7. Motor over-loaded.
8. Winding short circuited or grounded.
9. One winding open.
10. High mica between commutator bars.
11. Dirty commutator or commutator is out of round.
12. Worn brushes or weak brush springs.
13. Open circuit or short circuit in the armature winding.
14. Oil-soaked brushes.
15. Open circuit in the series or shunt winding.
16. Sticky or tight bearings.
17. Interference between stationary and rotating members.
18. Grounded near switch end of winding.
19. Shorted or grounded armature winding.

The table on this page lists some of the more common ailments of small motors, along with suggestions as to possible causes.

Most common motor troubles can be checked by some test or inspection. The order of making these tests rests

likelihood of an open circuit, poor line connection, or defective starter switch.

Centrifugal starting switches, found on many types of fractional horsepower motors, occasionally are a source of trouble. If the mechanism sticks in the running position

*Continued on page 57*

Sharp freezing  
28,800 lbs. of beef  
is easy with  
*Acme* **BLO-COLD**\*



\* Trade Mark

Sharp-freezing and storing more than 605 quarters of beef every 36 hours was the problem for the James Allan & Sons Plant in San Francisco. After slaughtering, the beef is frozen in two preliminary handling rooms, which are kept at  $-15^{\circ}$  F. These two rooms hold about 280 quarters of beef. After this preliminary freezing the beef goes into the "holding freezer" where 325 quarters of beef are kept in stock for delivery at temperature of "0° F." The entire freezing installation consists of ten ACME Blo-Cold Units, three in each of the preliminary freezing rooms—four in the "holding freezer". The James Allan & Sons Company is the largest Packer in the San Francisco area and their Plant is the only one that can deliver this large quantity of beef—about 28,800 lbs. frozen at  $-15^{\circ}$  and kept at "0° F." for delivery. Other Companies "cool" but do not freeze.



The Engineers for the James Allan & Sons Company, selected ACME Blo-Cold Units on the basis of comparative data, because of their simple installation and low-cost, dependable operation.

The versatility of the ACME Blo-Cold Unit makes it adaptable to a variety of applications. ACME Engineers will gladly cooperate in finding a low-cost solution to your Refrigeration problem. Write today—without obligation.



**ACME INDUSTRIES, INC., JACKSON, MICHIGAN, U.S.A.**  
**Air Conditioning and Refrigeration Division**

CONTINUOUSLY SERVING THE AIR CONDITIONING AND REFRIGERATION INDUSTRY SINCE 1919  
Circle No. 28 on Reader Service Card for more information

**FEBRUARY, 1952 • COMMERCIAL REFRIGERATION**



# Industrial Application Briefs

**L**AST May, in our special "Refrigeration in Industry" issue, we presented in capsule form a roundup of some of the more important industrial applications of cooling equipment. Because this list of "Industrial Application Briefs" has attracted such widespread interest, and because such installations continue to constitute an increasingly important market for the refrigeration contractor, we are publishing on this and the following page a supplementary listing of industrial applications which can mean more business—and more profit—for contractors from coast to coast.

## DUCTILITY OF ALUMINUM

**A**T ROOM temperature annealed aluminum ages rapidly. One type of rivet, for example, must be driven within 10 minutes of quenching. This would require continuous heat treating of fresh material at each point of use in a factory. It has been found, however, that ductility could be maintained within workable limits for a week or more in most rivets or sheets if the annealed material was held at low temperatures, -20 to -80 F, depending on the material.

Heating, treating and quenching can be done at one central location and the annealed parts stored in sub-zero cabinets strategically located at points of use throughout the plant. The storage cabinets take all forms, from the vending machine type used to dispense small packages of rivets, portable plug-in units, on to horizontal lift-type cabinets.

## COOLING ELECTROPLATING BATHS

**I**N MANY electroplating methods heat removal is of little or no importance. In some methods, such as the alkaline-cyanide process of zinc plating, however, temperature control of the solution is extremely important, both to maintain uniform quality in the plate and maximum production with existing facilities.

There are many variables, and the precise conditions to be maintained depend on individual experience. Evaporative coolers may in many cases be used to advantage in applications of this type.

## INSTRUMENT ASSEMBLY

**H**UMIDITY, temperature and dust control are important in the many different types of instrument assembly. Temperatures of 74 to 78 F and humidity of about 40% insure constant working conditions for cleaning lenses and preventing fogging in the assembled instrument lens departments. The same conditions are also true in bifocal lens fusing, where any film or foreign matter between the two pieces of glass to be fused may result in a faulty product.

A closely controlled system is important in making diffraction gratings. Here a temperature of 74 F with tolerance of plus or minus 1 F has proved most satisfactory. Humidity is not controlled to any degree, but dust control is important.

## COOLING FURNACE ROLL BEARINGS

**R**ELATIVELY large quantities of cooling water are required to keep the roll bearings on roller hearth furnaces from freezing up because of the intense heat in the furnace. In one plant where new 70-foot-long continuous controlled atmosphere roller hearth furnaces were being installed, it was found that each furnace would require 25 gpm of cooling water from the city supply to cool the bearings. With an evaporative cooler, however, water consumption would be reduced to 2 gpm, a saving in water cost of more than 90%. The evaporative coolers also provided a safety factor against freezing of the roller bearings in the event of a failure of the water supply, an important consideration.

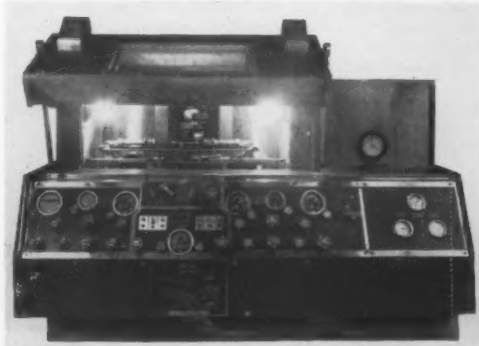
## MEDICAL COLLEGE

**A** ¾-hp condensing unit was hooked up with a standard blower coil to provide a cooling system which made a basement room in the Albany Medical College suitable for use as an animal experimental laboratory.

The blower was located in the laboratory room itself, while the condensing unit was placed in an adjacent area.

Prior to the installation of this simplified cooling system the room had been a veritable "sweat box" because of its location near the building's heating plant, and the doctors conducting the experiments perspired so freely that their operations were seriously hampered.

## O-RING TEST STAND



**H**AVING set up rigid specifications for the manufacture of O-ring hydraulic packings, the U.S. Navy was faced with the problem of developing a unit which would prove whether or not the rings submitted by manufacturers would meet the requirements of these specifications.

The unit which did the trick was a test stand designed and built by Ramsey-Bennett Co., Cleveland refrigeration engineering and contracting firm, for this specific purpose. This firm turned out four of these test stands with the cooperation and assistance of Parker Appliance Co. on the hydraulic system.

Temperatures produced in this test stand range from 185 F to -90 F in a definite and limited time cycle. Hydraulic pressures operate from zero pounds pressure to 3000 p.s.i.



# Industrial Application Briefs

## STABILIZATION OF TOOLS

**I**N certain cases gauges and dies are stabilized by the use of low temperature refrigerating units. In the stabilizing operation the gauges and dies are placed in the refrigerating units for several hours and then are removed and allowed to come to room temperature. For complete aging this procedure is repeated. In some cases it is necessary to go through the cycle—sub-zero refrigeration and back to room temperature—three or four times.

The metallurgical departments of several plants are investigating the application of cold treatment of tools such as taps, reamers, etc. They have experimented with this procedure and have found some increase in the life to tools which have been treated at sub-zero temperatures. As soon as sufficient laboratory information and data are obtained, many plants will adopt this procedure as standard treatment on certain types of tools.

## OPTICAL LENS MANUFACTURE

**I**N CEMENTING together precision lenses of different types of glass to form optical systems for many instruments, it is necessary to have dust control. This is also necessary in coating lenses by evaporating materials under high vacuum for increased transmission or reflection. Dust forms pinholes in the coating. Humidity also must be closely controlled to about 45% to eliminate the entrance of water vapor into the oil used in the diffusion pumps. Temperature is controlled between 74 and 78 F to insure constant working conditions for the high degree of precision required.

Since waxes are used to hold lenses on shells for grinding and polishing and their properties are greatly influenced by temperature, it is necessary to control temperature at 78 F within 1 F plus or minus. This temperature control is important also in measuring prisms for flatness and angle. Humidity is controlled because the polishing cycle is a function of the rate of drying, and to maintain constant cycle a constant humidity of 40% is necessary.

## COLD TREATMENT OF METALS

**C**OLD treating now ranks with heat treating as a primary process in certain branches of metallurgy. In some metal treating plants, metals and alloys are cooled continuously and at a constant rate from the highest temperature reached in heat treating to 80 to 130 F below zero. Changes in crystalline structure of the metal, thus effected, produce greater hardness, strength or ductility, according to the procedure followed.

Among outstanding results achieved by cold treatment of metals are those reported by users of cutting tools. In some cases, two to three hours of treatment at -120 F have doubled the life of cutting tools. Milling cutters, subjected to a similar "freezing" process, have withstood 24 hours of service instead of seven; hack-saw blades have lasted up to 119% longer, and drills have cut up to 250 holes instead of 150 before resharpening.

Refrigeration is used in the quick-aging of steel, the usual aim being stabilization. Molds have been held to within .001 inch after 1850 F heats, where material was normalized and frozen before treating. Refrigeration is also used to improve the machinability of steel parts, and to return the piece to proper shape after it has been distorted in heat treatment.

## PRECISION MACHINING

**T**HE adequate removal of the heat generated in cutting operations not only lengthens tool life and the periods between redressing, but also makes possible high speed production with great precision. This is true in both large and small operations.

An extreme example is the cooling of cutter and lubrication oils in a plant turning out the huge herringbone gears for ship propulsion. The prime requisite was precision in order that the gears mesh accurately and quietly in operation.

As it takes several days to finish each gear, temperature variations, which cause dimensional distortion, have to be eliminated. The temperature in the entire bay holding the gear cutting machines must be held constant. But also, excess heat from the cutting tool must be removed by a coolant oil and heat from other parts of the gear cutting machine must be removed by the lubrication oil. As 70 F was the coolant temperature found necessary in this particular job, heat removal from the oils was accomplished by means of mechanically refrigerated shell and tube oil coolers.

Packaged liquid coolers are used to control the temperature of coolants on such production equipment as internal grinders, automatic thread grinders, honing machines, boring machines, automatic lathes, automatic screw machines, etc. Coolant oil temperatures of between 65 and 80 F are maintained.

## PROCESS REFRIGERATION

**T**HERE are countless applications of refrigeration in industrial processing—removing chemical heat, controlling reactions, fractionating. Modern refrigeration equipment is particularly well adapted to handle the wide variety of special requirements. Its operation can be made fully automatic to hold a constant temperature or varied to meet almost any program. It can provide refrigerant temperatures as low as -130 F.

There are units or combinations of units to fit the requirements of each individual job with the greatest efficiency and low operating cost. Most modern refrigeration units are compact, requiring relatively little floor space, and where space is especially scarce, the units can sometimes be mounted on platforms over the working area.

## COOLING BRINE BATH SOLUTIONS

**O**NE plant turning out a large volume of annealed steel parts was faced with difficulty in maintaining the temperature of brine bath solutions at 70 F because cooling water from city mains rose well above this during the summer months. An indirect refrigeration system was decided upon, so that chilled water could be used to serve the existing brine coolers.

A maker of industrial lock washers found that variations in the temperature of his cooling water supply and the consequent changes in the temperature of the quench baths caused fluctuations in Brinnell hardness among various batches of washers. Use of an evaporative cooler not only provided the necessary temperature control (within 10 F of maximum outdoor wet bulb temperature) but also cut water consumption to less than 10% of that used in straight water cooling, paying for the equipment in two years.



# Everybody's talking about

## CHASE EXTRA SOFT COPPER REFRIGERATOR SERVICE TUBE IN THE NEW CARTON

Have you seen Chase Extra Soft Copper Refrigerator Service Tube in the new convenient carton? The new carton has made a simple matter out of storing, identifying, and shipping.

Chase Extra Soft Copper Refrigerator Service Tube is easily worked because it has a uniform temper. It comes to you clean and moisture-free. And the crimped end-seal keeps it that way. Tube comes in  $\frac{1}{8}$ " through  $\frac{3}{4}$ " diameters in 50' coils.

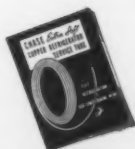
For extra tight, permanent joints, use Chase Wrought Copper Solder-Joint Fittings. They expand and contract with the tube and have no inside ridges to retard refrigerant flow.

# Chase BRASS & COPPER

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

• The Nation's Headquarters for Brass & Copper

Albany†	Cleveland	Kansas City, Mo.	New York	San Francisco
Atlanta	Dallas	Los Angeles	Philadelphia	Seattle
Baltimore	Denver†	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Providence	(trades office only)
Chicago	Houston†	Newark	Rochester†	
Cincinnati	Indianapolis	New Orleans	St. Louis	



**FREE BOOK** gives sizes, weights, packaging and installation details on Chase Copper Refrigerator Tube.

Circle No. 29 on Reader Service Card for more information

Chase Brass & Copper Co., Dept. CR252  
Waterbury 20, Conn.

Please send me your Free Book on Chase Copper Refrigerator Tube.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

## about

# PEOPLE

Election of **Cecil Boling** as president of Bush Mfg. Co. was announced recently following the annual meeting of the board of directors. He succeeds



James W. Hatch, who held that post since 1938. Hatch is now chairman of the board of directors. Boling has been in the heat transfer field for 18 years. Following graduation from Massachusetts Institute of Technology in 1932 he worked for two years with Jackson and Moreland Engineers, in Boston. He was associated with Melchior, Armstrong and Dessau for seven years, holding the position of vice president in charge of U.S. operations. He left M-A-D in 1940 to form the Cecil Boling Co., a sales and engineering organization. The Boling company represented Bush in the eastern states from 1940 until April 1951. At that time Boling was appointed vice president and general manager of Bush and held that position until the present.

**James J. (Jim) Goodwin** has resigned as general sales manager of Temprite Products Corp., Birmingham, Mich., effective Dec. 31. He is now organizing his own sales company with headquarters in Detroit, representing manufacturers of refrigeration, heating and beverage dispensing equipment. Goodwin has been known as a Temprite man for the past 17 years, where he once served as head of that company's development and test laboratory. He



later moved into sales engineering work, advancing to the management position held by him at the time of his resignation.

**Paul O'Brien**, who has been "on loan" to National Production Authority since January 1951, has resumed his duties as New York district manager for Kerotest Mfg. Co. O'Brien joined Kerotest in early 1945, after serving with the War Production Board during World War II. His headquarters in New York will be at the present Kerotest sales office, 60 E. 42nd St.

**Fred K. James**, formerly associated with the Chicago branch of Kinney Mfg. Co., makers of vacuum pumps and rotary liquid pumps, has recently been appointed manager of the company's Cleveland branch located at 2036 East 22nd St. While located in Chicago, James served as a salesman in the Southwest states.



**Max Banzhaf** has been appointed director of advertising and promotion of Armstrong Cork Co., succeeding E. Cameron Hawley, who has resigned. Banzhaf joined Armstrong in 1938 as a salesman in the building materials division, and was transferred to the advertising and promotion department in 1944 to head the building materials section of the department. He was named assistant director of advertising and promotion in May, 1951, and two months later was appointed acting director.

**Robert L. Hodapp** has been appointed chief engineer of Betz Corp., Hammond, Ind. He will be in charge of all product designing and applications. Hodapp was formerly with Copeland Refrigeration Corp. in charge of all laboratory testing. Before that he was a development engineer for Carrier Corp. The appointment of Hodapp as chief engineer is part of expansion plans recently announced.



**Robert L. (Bob) Farmer**, since 1943 an employee of General Controls Co., has recently been appointed factory sales engineer. Farmer will concentrate on sales engineering in the aircraft field.

**C. G. Klock** has been appointed manager of finance of the General Electric Co.'s Air Conditioning division, according to an announcement by F. J. Van Poppelen, general manager. Klock succeeds R. E. Whitmyer who is joining the company's Aircraft Gas Turbine department at Lockland, Ohio.

**J. K. Noel, Jr.**, vice president in charge of sales of Victor Products Corp., announces an aggressively expanded program in their National Users Dept., to be headed by **Linwood S. Kight**. Until very recently, Kight was general merchandise manager of the Potomac Edison System, directing the entire activities since 1933. Kight brings to his new responsibilities with Victor an experience of many years in the refrigeration business, dating back to the mid-twenties when he joined the R. F. Trant Company of Norfolk, one of



*Continued on page 73*

*Put*

***fedders***

**water coolers**

**in your 1952**

**1952 IS A WATER COOLER YEAR**

Fedders Electric Water Coolers are essential to defense, civilian, business and institutional users.

This is Fedders 20th Anniversary in the Electric Water Cooler Business. Fedders 1952 line gives you every profit-making advantage of popular sizes, multiple sales, minimum inventory, no consumer finance or credit worries *plus* 5 year protection plan.

Mail coupon for Fedders facts on bottle, bubbler and explosion-proof models, prices, discounts and deliveries.



*Profit Picture*

**FEDDERS-QUIGAN CORPORATION**

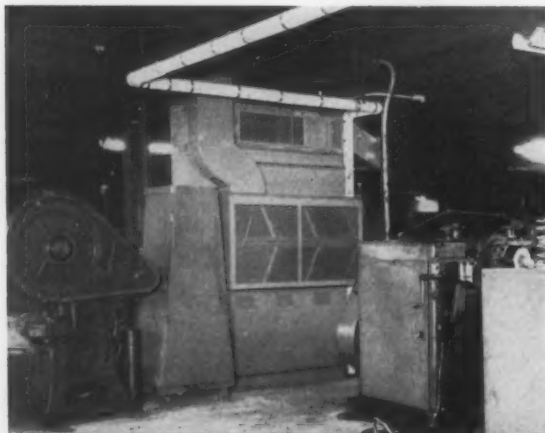
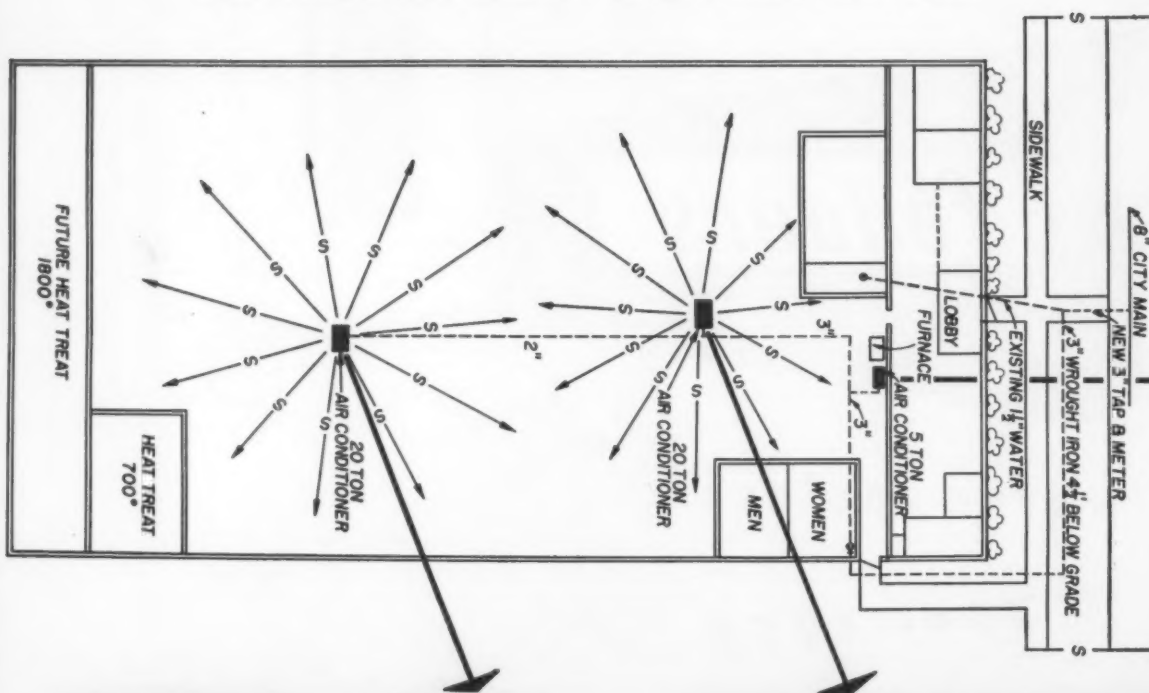
57 TONAWANDA ST., Dept. CR-10 BUFFALO 7, N. Y.

Send the complete information on Fedders Water Cooler setup for profits in 1952.

Name \_\_\_\_\_  
 Concern \_\_\_\_\_  
 Street \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_

# comfort cooling for production workers

CAREFUL SELECTION of equipment location made possible even air distribution throughout the plant.



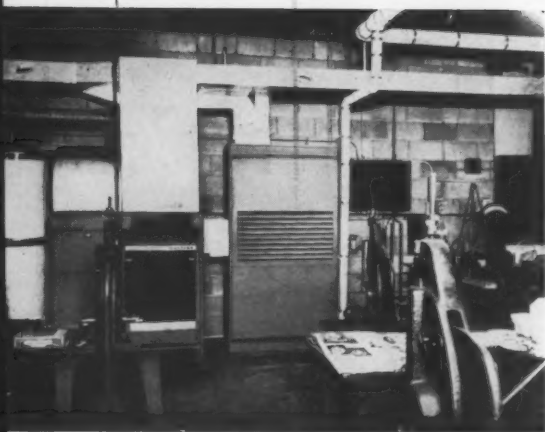
IN THE SHOP ITSELF this 20-ton unit helps keep workers comfortable regardless of outside weather conditions. Note the special plenum connection at right side of the unit and fresh air duct leading from roof.



AT THE OTHER END of the factory area, another 20-ton unit with special plenum chamber performs a similar function. Insulated water line and condensate discharge line running to roof spray system are shown at right.



# A TREND FOR FACTORIES?



**BOTH HEATING AND COOLING** for the factory's offices are provided by this 5-ton packaged air conditioner and furnace. The optional plenum chamber has been removed to make possible the necessary duct connections.

**I**N spite of the rapid advances in the application of air conditioning equipment for many different purposes, it's a fact that most air conditioning installed in factories is purchased with the "production" factor foremost in mind—in other words, to maintain the controlled temperature and humidity conditions required for the manufacturing process.

When a manufacturer installs air conditioning equipment primarily for the comfort of factory employees, that's news.

But that's the primary purpose back of the installation of packaged air conditioners made recently in the plant of the Anderson Spring Co., of Cleveland, by the Bell Refrigeration Corp., distributor of Typhoon equipment in the northern Ohio territory. It illustrates a new trend

in the application of air conditioning in the manufacturing field—one that contractors would do well to keep an eye on.

A recent survey of all air conditioning installations in Cleveland indicates that the Anderson Spring installation is the first comfort cooling job to be sold to a factory in that area.

The company manufactures steel springs for a wide variety of applications, virtually all of them according to other manufacturers' specifications. A high percentage of its output eventually is incorporated into finished products for defense and defense-supporting applications. Most of the factory work has to do with the operation of special machines used in turning out the springs, and a number of women workers are employed for inspection and other lighter tasks around the plant.

A high degree of skill is required to keep production moving along on schedule, and the company naturally was interested in keeping its factory employees' morale at peak, to reduce turnover and consequent loss of skilled help. Side benefits anticipated were an overall increase in plant efficiency, and fewer rejects from corrosion caused by sweaty hands during the inspection process.

To air condition the factory space, Bell's engineers installed two 20-ton Typhoon units, located directly in the conditioned area and without ductwork. An additional 5-ton unit was installed to cool the offices along the front of the building.

Anderson Spring's offices are cooled by tying a 5-ton unit on to the existing heating ducts, changing the distribution grilles, and making certain modifications in the duct sizes to adapt the distribution system for cold air. An extra outlet was added in the manager's office for heating purposes. Windows on two sides had previously made this office hard to heat in winter months.

The use of packaged air conditioners had two important advantages in this particular installation. In the first place, they enabled the job to be done at consider-

*Continued on page 78*

# LEAK-PROOF PRESSURE PROTECTION

*for Your Refrigeration  
and Air Conditioning  
Systems*



## BS&B Sealed-Type SAFETY HEADS

Smooth operation under normal conditions, positive protection against refrigerant leakage, plus *instant* pressure relief in an emergency—that's what BS&B Sealed Type Safety Heads guarantee your refrigeration or air conditioning systems.

The factory sealed assembly, consisting of a brass body and a fine silver, non-corrosive rupture disc, is given a five minute Freon leak before shipment. Sealed Type Safety heads are guaranteed against pressure or refrigerant loss under normal operation—until a pre-determined over-pressure develops. At this point the disc ruptures and the pressure is instantly released—saving expensive equipment from damage.

The non-mechanical feature of BS&B Sealed Type Safety Heads means virtual elimination of any maintenance as far as this part of your system is concerned. Sealed Type Safety Heads comply with code requirements and are accepted by cities operating under the ASME or ASA B9 codes. They have been accepted by leading refrigeration manufacturers for factory installation in their systems.

Dept. 2-BU2



**BLACK, SIVALLS & BRYSON, INC.**

7500 East 12th St.

Safety Head Division

Kansas City 3, Mo.

# NEWS OF THE INDUSTRY

## BRUNNER OFFERS 5-YEAR WARRANTY ON OPEN UNITS

Effective Feb. 1, all Brunner open type commercial refrigeration compressors from 1/4 up to and including 10 hp models will be offered with a five year protection plan as optional in addition to the Brunner standard one year warranty. Some 23 air and water cooled models will come under this service protection.

The open-type compressors in Brunner's 3, 5, 7 1/2 and 10 hp self-contained floor type BAC air conditioners will also be offered with this new 5 year protection policy.

In announcing the plan, unique in the open type unit division of the refrigeration industry, Frank C. Hawk, director of sales for Brunner, said that the plan is practical because of the record of care-free operation that Brunner units had established over years of service.

Users of the company's units, under the warranty plan, are assured that the body casting and/or any parts will be replaced, exchanged, or repaired without charge in the event of mechanical failure within the 5-year period covered by the plan.

The plan operates as follows: each compressor leaving the factory has attached to it a "protection policy application form". Dealers who wish to have their customers avail themselves of the plan fill out the form and mail it in to the factory. The factory issues the protection policy in the name of the customer, and mails it to the customer.

Attached to the warranty will be a "service application form" which the dealer uses as a request for needed replacement parts without charge. The usual charges are made to the customer for labor and transportation, after which the "serv-

ice application form" is returned to the customer for further use, if it should be necessary.

Where the dealer may use the "service" form to pick up compressor parts from the distributor, the replacement parts will be shipped direct to the distributor. Thus no time is lost by customer, dealer or distributor. All "paper work" on the warranty plan is handled at the factory.

Complete details of the warranty plan may be had by writing to Brunner Mfg. Co., Utica, N. Y.

## NORGE TO BUY TECUMSEH UNITS

Beginning Jan. 1, Norge Div., Borg-Warner Corp., will purchase refrigerator compressors from Tecumseh Products Co., according to H. L. Clary, Norge vice president in charge of sales.

George M. Smith, Norge president, had announced earlier that the company was closing its compressor plant in Chattanooga, Tenn., on Dec. 21 and would obtain its compressor units from an outside source.

## PLANE CRASH KILLS 3 CARRIER MEN

Three executives of Carrier Corp. were among the 26 persons killed Jan. 22 when an American Airlines plane crashed into an Elizabeth, N. J., apartment building while attempting a radar-controlled landing at the Newark Airport. They were:

Carl U. Spriggs, assistant general sales manager; John F. Chester, director of public relations; and H. Lee Sterry, director of product management. The men had boarded the plane at Syracuse.

Spriggs, 44, was in charge of sales for Carrier's dealer division, and was known to hundreds of Carrier dealers and salesmen throughout the country. He had been with Carrier since 1944, when he joined the company as assistant manager of the marketing division.

Chester, 45, had been Carrier's public relations director since 1947. Prior to this, he had been for many years with the Associated Press, most recently as AP's business editor.

Sterry, 50, had been with Carrier since 1943, and di-

rector of product management since 1947.

## ACRMA ORGANIZES HOME UNIT GROUP

A Home Air Conditioner Section has been authorized and is now in the process of being organized, Air Conditioning and Refrigerating Machinery Association has announced. Under the chairmanship of J. A. Gilbreath of Servel, Inc., the new group will be a part of the association's Self-Contained Air Conditioner Section.

This move comes as a result of the increasing trend towards year-round air conditioning of residences utilizing central station equipment of the packaged type. It is expected that the new ACRMA Home Air Conditioner Section will cooperate with other industries interested in residential air conditioning in the development of application and other standards.

## ACRMA ESTIMATES ROOM UNIT SALES

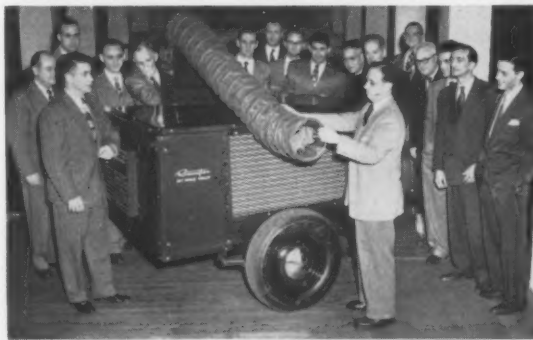
The Air Conditioning and Refrigerating Machinery Association has released its estimates of manufacturers' shipments of room air conditioners in the year 1951. These estimates, given below, include shipments by all manufacturers, both ACRMA members and non-members:

	Manufacturers	
	Units	Sales Value
Window-sill type	238,450	\$45,305,500
Console (floor) type	12,550	4,267,000
Total	251,000	\$49,572,500

## REMA MEETING SET FOR MARCH 27-29

The 1952 annual meeting of Refrigeration Equipment Manufacturers Association will be held on March 27, 28 and 29 at the Greenbrier, White Sulphur Springs, W. Va.

## REMINGTON MEN SHOWN MOBILE COOLER



REGIONAL SALES AND SERVICE MANAGERS of Remington's Air Conditioning Division look over one of the company's 36T Mobile Coolers during their recent week-long sales forum at the Remington factory in Auburn, N. Y. Presentation of the 1952 line of Remington room air conditioners and dehumidifiers, and sales and advertising plans for the year highlighted the meeting. Added emphasis will be placed on military and industrial air conditioning products this year.



## PEANUTS ARE GREAT FOR ELEPHANTS

## but Air Conditioning Dealers thrive on Profits

★★★★★

says

## TYPHOON

No wringing of hands or crying in their beer by Typhoon dealers. They make money on air conditioning—year in, year out. For Typhoon's policy is: "every dealer must prosper." And Typhoon makes good on this policy with a brass tacks program that brings in more dollars for dealers.



### TYPHOON 5-Way PROFITS PLAN

- ① Typhoon, America's No. 1 specialist in packaged air conditioners, brings you the most complete line of units in the quick-profit range — 1½-2-3-5-7½-8-10-15 and 20-tons. There's a size for every job!
- ② Typhoon units are engineered to deliver full rated capacity even after years of hard service. This means minimum servicing, maximum profits and good will.
- ③ Typhoon delivers air conditioning at the lowest dollar cost per ton capacity—value that means full markup for you.
- ④ Typhoon district managers give you 100% sales cooperation, with practical in-the-field training for your sales force.
- ⑤ Typhoon units are backed by 42 years of experience in the air cooling field... and by an advertising and promotion program that produces a steady flow of leads for you.



Want to know about the finest dealer setup in the business? Write us today.

**TYPHOON AIR CONDITIONING CO., INC.**

794 UNION STREET, BROOKLYN 15, NEW YORK

### CMP MATERIAL FOR INSTALLATION OK'D

National Production Authority has amended CMP Regulations 5 and 7 to permit manufacturers and repairmen to use priority ratings for obtaining materials for installation of industrial equipment and household appliances and to bring other provisions of both regulations up to date.

The amendment to CMP Regulation 5:

1. Permits manufacturers to obtain materials needed for installation of equipment in existing buildings on a priority basis in the same way they are permitted to obtain minor capital additions. "Installation" is lengthily defined. A limit of two tons of carbon steel, 200 pounds of copper products, and no aluminum, stainless steel or alloy steel is established for each installation. NPA pointed out that installation under the regulation is *not* construction as defined in Order M-4A.

2. Establishes separate minimum quarterly quotas of \$1,000 each for MRO supplies, minor capital additions and installations. Previously, the minimum for combined MRO and minor capital additions was \$1,000 a quarter.

3. Raises from \$750 to \$1,000 the limit which a manufacturer may spend for each minor capital addition when he uses the MRO symbol to obtain materials.

4. Expands the definition of operating supplies of a business enterprise to include expendable tools, jigs, dies and fixtures used on production equipment, regardless of the accounting practice of the business. (For Government agencies, operating supplies are defined as any item which does not exceed \$50 in cost or which is normally consumed in the course of an operation within a year after acquisition and was not carried as capital equipment on the agency's books.)

The amended regulation also points out that a manufacturer who makes "A" or "B" products for his own MRO use must employ the symbol MRO to obtain controlled materials, and the rating DO-MRO to obtain non-controlled materials to make such products, rather

than apply to NPA for an allotment of controlled materials or for a DO rating.

The amendment supercedes a previous amendment issued August 10, 1951, but does *not* affect two directions already issued to CMP Regulation 5.

The amendment to CMP Regulation 7 defines installers of domestic appliances (such as television sets, refrigerators, stoves and washing machines) as repairmen, thereby granting them the right to obtain materials needed for installation work on a priority basis.

The amendment:

1. Permits an operator who ran more than one sales, service, repair or installation establishment during the year before July 1, 1951, to treat these establishments as separate entities under the regulation.

2. Defines installation as the setting up or relocation of appliances, machines or equipment in position for service in existing buildings, and provides that such installation is *not* construction as defined in Order M-4A.

3. Adds Schedule 1, to the regulation. It lists the following materials and products which the rating DO-RE may not be used to obtain any basic chemical; nylon fibers and yarns; paint, lacquer and varnish; paper and paper products; paperboard and paperboard products; and materials in List A of NPA Regulation 2 (for which *no* DO rating is valid).

### FINNEBURGH HEADS FOUNTAIN MFRS.

M. L. Finneburgh, general sales manager of the fountain-food service equipment division of Liquid Carbonic Corp., was elected chairman of the executive committee of the Soda Fountain Manufacturers' Association at the annual meeting at the Sheraton Hotel, Chicago.

Other elected members of the executive committee are: H. G. Hood, United-American Soda Fountain Corp., S. C. Knight, Stanley Knight Corp., L. N. Lucas, Bastian Blessing Co., and R. W. Mann, Grand Rapids Cabinet Co.



## CMH NAME CHANGED TO FLEXONICS CORP.

Effective Jan. 1, the name of Chicago Metal Hose Corp. has been changed to Flexonics Corp. According to J. F. P. Far-rar, president, the growth of the company and the de-velopment of varied prod-uct lines made it desirable to select a new corporate name more representative of the broad scope of the company's activities.

Flexonics Corp. now man-ufactures more than 150 products including aircraft parts and assemblies, pipe-line expansion joints, in- and automobile themostate strument control bellows in addition to all types of flexible metal hose. The company was established in 1902.

Now building its sixth manufacturing plant in Memphis, the company has general offices and a plant in Maywood, Ill., and other plants in Elgin, Rock Falls and Savanna, Ill., an east-ern assembly warehouse in Elizabeth, N. J., and a Can-adian subsidiary at Bramp-ton, Ont.

## NPA OUTLINES DEFENSE REQUIREMENTS OF CRITICAL MATERIALS

National Production Au-thority recently announced that beginning in the first quarter of 1952 direct de-fense and defense-related production and construc-tion would take more than 40% of the carbon steel, and about 60% of the sup-

plies of aluminum and copper wire mill and copper brass mill products.

These estimates, accord-ing to Defense Production Administrator Manly Fleischmann, reflect the greatly increased needs of the military as the defense

program gets into swing.

The following table shows the screened re-quirements, the first quar-ter allotments of the various Controlled Materi-als Plan products, and the percent of the allotments as compared with the supply:

CMF Material	Screened Require-ments 1st Quarter 1952	CMF Allotments 1st Quarter 1952	Require-ment as % of Supply
Carbon Steel (product tons) .....	30,337,982	21,780,073	156.5
Carbon Structural Steel (product tons) ..	2,653,570	1,596,264	186.2
Carbon Plate Steel (product tons) ....	4,085,597	2,578,328	177.6
Alloy Steel (product tons) .....	2,586,946	1,815,802	161.7
Stainless Steel (pounds) .....	448,220,000	306,267,000	160.1
Copper Brass Mill Products (pounds) ..	1,073,155,000	773,796,000	—
Copper Wire Mill Products (pounds) ..	545,588,000	398,118,000	151.6
Copper Foundry Products (pounds) ....	456,282,000	322,012,000	157.3
Aluminum Ingot (pounds) .....	1,033,061,000	713,566,000	166.6*

\* Does not take into consideration supplies to be obtained from Great Britain.

## USAIROCO USES TV FOR '52 PROMOTION

A stepped-up promo-tional campaign, including the company's entry into television advertising, is planned by United States Air Conditioning Corp. for its 1952 window type air conditioners, it is announc-ed by D. E. Feinberg, vice-president in charge of the refrigeration division of the Minneapolis firm.

The merchandising pro-gram will be concentrated in the major metropolitan areas of the eastern half of the United States and a few other selected sections be-cause of limitations on pro-duction due to the shortage of critical materials accord-ing to the announcement.

Inasmuch as the distri-bution will not cover the entire nation, the promo-tional campaign will be

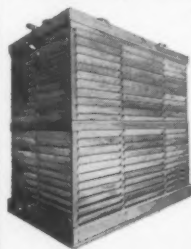
conducted at the various local levels, and will in-clude radio, newspaper, and direct mail, in addition to television advertising.

In the early stages, the TV portion of the campaign will comprise one minute spot announcements, with more extensive use of the medium planned for the height of the air condition-ing selling season.



**Low in Cost — but  
High in Operating Efficiency!**

## Pritchard Series "SR" Quality COOLING TOWERS



Featuring a low initial cost and greater efficiency, Pritchard Series "SR" Cooling Towers are ideal for air conditioning and refrigeration installations requiring from 3 to 35 tons capacity. Highest quality materials and better design assure longer life for these packaged units. Constructed of Redwood with steel pipe distribution system for trouble-free performance. "Slip-fit" design gives easy access to tower. Materials pre-fabricated before shipping. Investigate this low cost tower today if you're looking for higher operating efficiency in a small capacity tower.



Write for Bulletin No. 5.9.082  
TODAY!

Cooling Towers  
Specialized  
Heat Exchangers  
Gas & Air Treating

**J. F. Pritchard & Co.**

**EQUIPMENT DIVISION**

Dept. No. 205 908 Grand Ave. Kansas City 6, Mo.

District Offices: CHICAGO • HOUSTON • NEW YORK • PITTSBURGH  
TULSA • ST. LOUIS • Representatives in Principal Cities from Coast to Coast

**thar's GOLD**  
in them thar' Pre-bilt  
**SHELVES!**

**INSTALL COMPLETE**

**FOOD STORES**

Now you can figure complete jobs with Hirsh Pre-Bilt Shelving Equipment! The Hirsh Plan enables you to sell wall and gondola units that the merchant can assemble himself.

**EASY TO INSTALL  
FULLY ADJUSTABLE**

**HEAVY DUTY CONSTRUCTION  
PROFITABLE FOR YOU**



Write now for complete in-formation—no obligation!



S. A. HIRSH MFG. COMPANY  
8051 CENTRAL PARK AV., SKOKIE, ILL.  
Chicago phone: Cornelia 7-4140  
"CR"

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Circle No. 34 on Reader Service Card for more information and AIR CONDITIONING • FEBRUARY, 1952





# There's a Reason

## MORE DEALERS ARE SWITCHING TO FOGEL

*In fact--there are many reasons!*

- **A COMPLETE LINE—SELL EVERY PROSPECT**  
You can meet every need of every prospect without hop-scotching from one line to another.
- **EXCLUSIVE MODELS THAT ARE "DOOR OPENERS"**  
Designed for space-cramped neighborhood stores where competitive models can't fit. Eliminates "cut-throat" competition. Fastest profit-making food merchandisers on the market.
- **PROTECTED TERRITORY**  
The Fogel franchise protects the sales efforts and prospects of the dealer who does a reasonable selling job. No purchase commitments required.
- **COMPETITIVE PRICES—GENEROUS DISCOUNTS**  
Competitive prices and generous discounts help you close more sales at bigger profits.



"ANGLE VISION"  
COUNTER TOP  
FREEZER

Most versatile sales builder and space saver ever designed. Can be placed in space-cramped stores where no other freezer could fit.

"VEGMART"

Three-deck combination produce case with refrigerated middle deck for produce, fruit display on top deck, potato-onion bins below. Brings superette service to the neighborhood store.



*Get the Facts . . . Get the Profits*

FOR COMPLETE INFORMATION WRITE, WIRE, PHONE

**FOGEL REFRIGERATOR CO.**

5400-C EADOM ST.

PHILADELPHIA 37, PA.

Circle No. 35 on Reader Service Card for more information

### BORDEN MEN FLY TO FEDDERS



ON THEIR WAY to a recent meeting of eastern distributors of Fedders-Quigan Corp. are these men from A. E. Borden Co., Boston wholesale distributor of refrigeration and air conditioning parts and equipment, pictured here aboard an American Airlines flagship. In the front seats are C. D. Penn, Borden's sales promotion manager, and Madison Gilman, equipment division salesman. Behind them are Chester Brigham, Norman Honecker, and Leo Heffernan, branch manager of the company's Portland, Me., branch.

### NPA INTERPRETS "SIGNATURE" NEED

The National Production Authority has issued an interpretation of NPA Regulation 2, stating that when a customer signs a purchase or delivery order the signature may also serve in most cases as the signature for certification of the fact that the order complies with NPA regulations.

NPA also pointed out that denial of a project in the first quarter does not bar the applicant from filing again in a later quarter, when permission may be granted if the available supply of controlled materials has improved.

### BS&B OPENS OFFICE IN SAN FRANCISCO

Henry R. Ruysser, Jr., vice president and general sales manager of Black, Sivalls & Bryson, Inc., Kansas City, has announced the opening of another new California sales office at San Francisco. Announcement was recently made of the opening of a Los Angeles office.

Ross Baze, west coast sales manager, Los Angeles, will be in charge of the San Francisco office, locally assisted by Warren J. May, sales engineer.

### MOST CONSTRUCTION REQUESTS DENIED

NPA announced recently that of 2,052 applications for allotments of controlled materials in the first quarter of 1952 to build commercial, religious, entertainment and community structures, 1,601 were denied.

Allotments were made to 350 applicants; 41 were granted an approved construction schedule where no allotment was required; and 51 were exempt under terms of NPA regulations as the amount of controlled materials required did not exceed the amount they are permitted to obtain without authorization.

NPA pointed out that the high number of denials was made necessary by the limited quantity of controlled materials, especially structural steel, available for civilian construction due to the defense program.

### NPA ADVISORY UNIT IN NEW BUILDING

The NPA Business Advisory Center, formerly located in the Old General Accounting Office Building, has been moved to Room 2-N-6 of the New GAO Building. Hereafter the office will be known as the Business Advisory Service.

Both telephone and personal calls will be handled by the office.

# NEW DOUBLE-FLOW AQUATOWER

Marley Introduces Lowest Silhouette, Lowest Pumping Head Cooling Towers For Intermediate Capacities



## New Simplicity • New Accessibility • New Efficiency

By combining the outstanding features of the large patented Double-Flow and the smaller Aquatower (both accepted leaders in their fields), Marley has produced the cooling tower that will set the standard in another size range . . . **THE DOUBLE-FLOW AQUATOWER.** Architects, engineers and contractors will be equally enthusiastic about this tower because it is highly efficient, lowest in height and harmonious with building design, and remarkably easy to erect.

The Double-Flow design means low tower height and low pumping head; efficient air utilization—one fan drawing air from two completely open sides—with consequent minimum fan horsepower requirement. Open distribution, “at-a-glance” inspection are features, as are minimum load concentration and economical grillage and support.

From the Aquatower comes simplicity . . . of construction, of piping, of operation. The

naillless Redwood filling that is very easily installed or removed is another adaptation. All basin fixtures are readily at hand. Double-Flow Aquatower mechanical equipment is all designed, manufactured and guaranteed by Marley specifically for cooling tower usage . . . and it is all completely accessible.

You'll want complete details of this tower that will fit many installations in many industries, typical of which are those requiring 50 tons or more of refrigeration. Fill out the coupon below and you will receive it immediately.

Producers of  
DOUBLE-FLOW TOWERS  
AQUATOWERS  
VAIRFLO TOWERS  
CONVENTIONAL TOWERS  
DRICOOLES  
NATURAL DRAFT TOWERS  
SPRAY NOZZLES



**The Marley Company, Inc.**

222 West Gregory, Kansas City 5, Mo.

**Send me your 8-page brochure on the new Marley DOUBLE-FLOW AQUATOWER.**

Name

Firm

Address

City  State

Circle No. 36 on Reader Service Card for more information  
and **AIR CONDITIONING • FEBRUARY, 1952**

# THE HEATING OF AIR CONDITIONING SIDE

By Wm. Henry Knowlton

## Heating and Human Comfort

THE basic purpose of most heating or air conditioning systems is to provide human comfort. This is particularly true of the heating side of the cycle because heating is an absolute necessity in much of the country. In the majority of our 48 states heating is essential throughout many months of the year, both for comfort and the protection of human health.

Comfort has been defined as "the absence of discomfort". Normally we take comfort for granted, as we only become aware of it when discomfort due to extremes of temperature is present. Heating in one form or another, from the old style base burner to modern air conditioning systems, is normally accepted in our structures. At the same time, scientific research has established, within closely defined limits, the ranges of temperature and humidity within which man is comfortable.

Factors affecting comfort are the quality of our structures, clothing, and our heating systems. Reduced to an absurdity, the Eskimo finds "comfort" through the long, frigid arctic night, with a snow igloo, heavy fur clothing, and heat produced by a dish of burning whale blubber. In the last analysis he virtually has no heating system at all, except his own body.

### Man Is a Heat Losing Animal

Because man is essentially a heat losing animal, the cardinal factor in the design of any heating system is to control the rate at which the body loses heat. The body temperature of 98.6 F is nearly always warmer than the temperature of the surrounding

atmosphere or objects, hence the body constantly gives off heat. (See Figure 1)

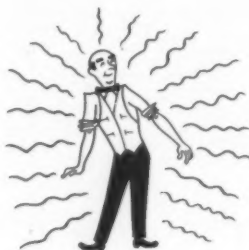


Fig. 1

The temperature of the human body is regulated by a delicate mechanism, and everyone is familiar with what happens when the body temperature rises very far above its established level. Efforts to reduce the temperature of the body for therapeutic purposes, a project in which the writer participated, resulted in a state of hibernation known as "frozen sleep" which proved to be too formidable to have practical value.

With the assistance of heating equipment, man is healthy, happy, and comfortable at about 70 F.

The human body converts food to energy, part of which is given off in the form of heat. That is why the body has been compared to an internal combustion engine, as it takes in fuel (food), uses oxidation to reduce most of the fuel to energy, and throws away certain waste products.

The amount of heat given off by an individual, however, is governed both by his clothing and his degree

of activity. A man at rest gives off 400 Btu's an hour; a bowler gives off about 650 Btu's and violent exercise may drive the figure past 1,000 Btu's per hour.

As 1,000 people seated at rest in a theater will give off 400,000 Btu's per hour, it follows that a well filled auditorium needs very little heat, even in coldest weather.

The human body is continuously losing heat in four ways—by conduction, radiation, convection, and evaporation, and the heating engineer is concerned with reducing these losses to a point where maximum comfort is a direct result.

### Conduction

Heat is lost by the human body when it comes in contact with the colder surface of a mass. An extreme



Fig. 2

example of conduction would be a man standing or sitting on a cake of ice, as shown in Figure 2.

A more realistic situation will be found when people are seated at rest in a theater or auditorium having a cold concrete floor. Heat travels from their feet and legs to the cool con-

# What the serviceman should know about "VIRGINIA" REFRIGERATION products

## "EXTRA DRY ESOTOO"

(B.P. +14°F.)

"Extra Dry" is the refrigeration grade  $\text{SO}_2$  that service and maintenance engineers have endorsed for more than 20 years. Comes in all popular cylinder sizes.

## "V-METH-L" (B.P. -10.7°F.)

Virginia Methyl Chloride is made specifically for refrigeration use. Low moisture content, low acidity and narrow boiling range recommend "V-Meth-L" for the most exacting requirements.

## "FREON" REFRIGERANTS

"FREON-113"	"FREON-114"	"FREON-11"
Boiling Point	Boiling Point	Boiling Point
117.6°F.	38.0°F.	74.7°F.

"FREON-12"	"FREON-22"
Boiling Point	Boiling Point
-21.6°F.	-41.4°F.

Virginia Smelting Company is distributor for "Kinetic" Chemicals "Freon" Refrigerants and for "Suniso" Refrigeration Oils.

TO CHARGE A SYSTEM, USE REFRIGERANTS THAT ARE  
CONSISTENTLY PURE, CONSISTENTLY SURE

## HOW TO SEAL CASES, INSPECTION PLATES, PIPE OPENINGS



When you seal out moist air, you prevent condensation, corrosion and insulation troubles. The outstanding seal, the one

preferred by service and maintenance engineers, is Permagem. Brown Permagem comes in 2½-lb. and 45-lb. slugs. Adheres to any dry surface. Never hardens; stays plastic from 0° to 350°F.; absolutely odorless. Gray white Permagem comes in rolls containing 80 ft. of ⅜" cords. Seals around wiring; won't attack rubber. Never hardens; odorless; can be painted immediately.

**VIRGINIA**  
Refrigerants

ASK YOUR WHOLESALE  
OR WRITE  
VIRGINIA SMELTING  
COMPANY

WEST NORFOLK, VIRGINIA

PHILADELPHIA • NEW YORK • BOSTON  
CHICAGO • DETROIT • ATLANTA

for more information Circle No. 37 on Reader Service Card



Good to the last  
*Drip*



## Eastern hot CONDENSATE DISPOSAL UNIT



**Automatically removes hot condensate  
from air conditioning units . . . .**

This completely automatic unit disposes of hot liquid condensate at temperatures up to 200-210°F. It's easily installed in air conditioning, or similar systems, where normal gravity drain-off is not possible. Quiet and reliable, it requires no oiling or maintenance during its long life. Low operating cost and rust proof construction make this compact and rugged unit a worthy investment in convenience. Complete catalog material on request.

### SPECIFICATIONS

**TANK:** Capacity — Approximately 0.8 gallons. Brass with black enamel outside.

**PUMP:** Bronze centrifugal pump. Delivery approximately 4½ GPM at 0 PSI and shut off of 12½ PSI.

**MOTOR:** 1/40 HP, 3450 RPM, single phase, 60 cycles, 115 volt, totally enclosed, ball bearing, capacitor start motor.

**WEIGHT:** 23 pounds.

**CONTROL:** A switch, operated by a float, is so set that the pump will pump out approximately 0.4 gallons of condensate at each operation. A check valve built into the outlet prevents the outlet line draining back into the tank.

**WIRING:** The unit is provided with a knockout hole for attachment of BX Cable for the motor. All wiring is enclosed in unit.

**Eastern INDUSTRIES, INC.**  
296 ELM STREET, NEW HAVEN, CONNECTICUT

## JAMISON DOORS

fill every need for  
**0°F. and BELOW**

Some of America's most modern and largest cold storage warehouses, frozen food processors and ice cream manufacturers are benefiting today from their wise investment in JAMISON Cold Storage Doors. By every standard of comparison . . . design, construction, economical operation and longer service life . . . JAMISON offers you the most for your money. There's a size and style for every need at 0°F. and BELOW. For more complete information, write today for Catalog No. 1. JAMISON COLD STORAGE DOOR COMPANY, HAGERSTOWN, MD., U. S. A.



**For Temperatures  
From**

**0°F. TO -20°F.**

**"LO-TEMP" DOOR**

*Infitting type door*—another "first" created by Jamison. By correct design, innovation in gasketing and proper type of hardware, we have perfected this infitting door capable of unexcelled performance for temperatures as low as -20°F

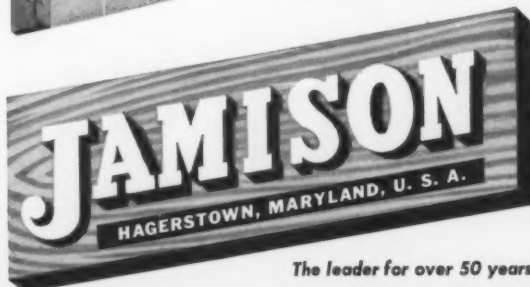


**For Temperatures**

**LOWER THAN -20°F.**

**SUPER FREEZER DOOR**

*Overlap type door*—because of its overlap design, this door can be supplied with ANY REQUIRED THICKNESS OF INSULATION. It is the standard door for use in all operations where temperatures below -20°F. are maintained.



*The leader for over 50 years*



crete mass, and discomfort becomes acute.

One of the reasons for the growing popularity of floor type "radiant" heating is that the heated floor reduces loss by conduction, and thus improves human comfort.

### Radiation

Radiant heat, like radio waves, travels in straight lines, and the human body is continuously losing heat by this method. Radiant heat waves travel directly to the nearest surface or mass, without giving up heat to the atmosphere through which they pass.

Thus, if the human body were surrounded by surfaces having a temperature of 98.6 F there would be no loss by radiation. More often, however, the individual may be seated near a window, as shown in Figure 3, and when the window has a surface temperature of 40 F. the loss by radiation is very pronounced. Con-

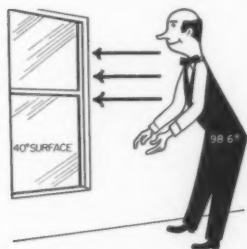


Fig. 3

ditions in buildings mistakenly described as "drafts" are often due to loss by radiation.

Again, a combination of moving air and radiant loss will produce discomfort, which may be corrected by the use of double glass or storm windows, or by designing the heating system to "screen" the cold surface. In any case, the net result is to raise the surface temperature of the glass, and thus reduce the flow of radiant waves to that surface.

### Convection

Heat given up by the human body to the surrounding air is known as heat loss by convection. Because the ambient air temperature is normally about 72 F, it is much cooler than the body temperature. (See Figure 4).



Fig. 4

The rate of loss, however, is governed not only by the temperature of the surrounding air, but by the speed with which this air moves over the body. Rapidly moving air, even when heated, will cause loss by convection that may produce marked discomfort.

This accounts for the popularity of various "radiant" types of heating systems, and for the "gentle, imperceptible air motion" now recommended by the National Warm Air Heating and Air Conditioning Association. Actually, the greatest degree of comfort will be found in still air, but such

## ROTARY SEAL

### Replacement Units

- ✓ Easy to install
- ✓ Simple in Construction
- ✓ Efficient in Operation
- ✓ Economical

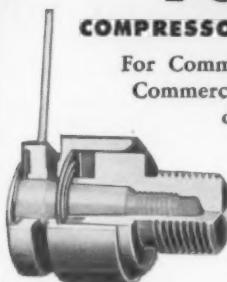
AVAILABLE FOR MORE THAN

**900**

### COMPRESSOR MODELS

For Commercial, Semi-Commercial, Air Conditioning, and Home Refrigerator Compressors . . . .

Units are available for all Standard makes . . .



UNIT No. 3400

ROTARY SEAL Replacement Units are the original precision-built replacements . . . Proven for satisfactory performance over 20 years of successful use.

AT ALL

THE mechanical seals for

LEADING JOBBERS

"Seal with



Certainty!"

**2020 NORTH LARRABEE STREET  
CHICAGO 14, ILLINOIS, U.S.A.**

CANADIAN AGENT: 2025 ADDINGTON AVENUE  
MONTREAL 28, QUEBEC, CANADA

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

Circle No. 40 on Reader Service Card for more information

a situation is highly impractical because it is almost impossible to obtain.

### Evaporation

Evaporation of perspiration is nature's way of regulating the body temperature in summer, when loss by radiation, convection, and conduction are reduced. Heat supplied by the body to change moisture on the skin to water vapor is known as latent heat of vaporization. (See Figure 5).

Latent heat is always released or absorbed when a physical state is



Fig. 5

changed, as when ice is changed to water, or when water is changed to vapor or steam. The popularity of humidifiers used with many types of heating systems is due to the fact that a higher humidity reduces body loss by evaporation in winter, and thus contributes to human comfort.

### Climate and Man

An exhaustive study of the effects of atmospheric conditions on mankind will be found in "Climate Makes the Man" by Dr. Clarence Mills, professor of experimental medicine, University of Cincinnati (Harper & Brothers). Written for the layman, the book is both entertaining and instructive reading for anyone interested in this important subject.

### Non-Thermal Factors

In addition to heat and relative humidity, several non-thermal factors affect human comfort. These are odors, smoke, dust, and pollen.

In modern heating systems provision is often made to remove odors resulting from the oxidation of materials. Cooking odors are usually controlled by a kitchen ventilating fan.

As most odors are the result of microscopic particles of materials released into the air, they may be absorbed by a bank of coconut charcoal filters. Smoke may be removed from the air by means of an electrostatic precipitator, which removes other dirt particles at the same time.

The majority of pollens which aggravate asthma, hay fever, and similar conditions may be removed with any good air filtering system, using conventional "throw-away" or permanent type air filters.

All any individual has to do to determine if his allergy is air borne (it may result from food) is to spend several hours in an air conditioned motion picture theater or other building having a good air filtering system. If pollen is the cause of the discomfort, relief will be both welcome and immediate.

Our next article will discuss the various types of heating systems now employed in residences and light commercial buildings to produce the highest possible degree of human comfort.

## for all water cooling -- use *Filtrine* —sell more condensing units

### "DO" Orders are Vital!

For all Federal Agencies . . . All Armed Services . . . Filtrine products meet government specifications.

Promote your own condensing unit sales with Filtrine's 20-year-life construction . . . high capacity . . . Super Storage . . . more than 40 years' dependability.

#### COOLERS FOR MESS HALLS — CAFETERIAS



Taste-Master

Sell your condensing unit with Filtrine Stainless Steel or Duco finished cabinets, equipped to suit with top/side shelves, bubblers, glass-fillers. Can be Taste-Master equipped to remove chlorine, rust, sediment from water.



MC-14-S  
MC-43-S

MC-25-S  
MC-40-S

#### COOLERS FOR X-RAY & PHOTOGRAPHY

Sell your condensing unit with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray, and photo-labs. Under counter design and floor-mounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.



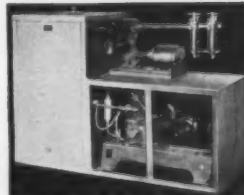
PH-7

PH-14

PH-25

#### PACKAGED CIRCULATING CHILLED WATER SYSTEMS

Sell your condensing unit! Systems for drinking or processing water—completely packaged with pump, controls, your condensing unit factory installed. Capacities 5—400 g.p.h.; storage 5—150 gals. Filters and Rectifier-Dechlorinators (extra) to insure taste-free, sparkling water.



Typical "Packaged"  
Circulating Chilled Water System

#### REMOTE COOLERS

Sell your condensing unit with remote models for new and replacement jobs—all applications. Capacities 10—1000 g.p.h.; storage 7—300 gals. Filters, Rectifier-Dechlorinators available for all sizes.



Remote Model Coolers



Get our new "How to Sell DO Jobs" —write Dept. RF2

FILTRINE MANUFACTURING COMPANY • BROOKLYN 5 • N. Y.

"Water Coolers and Filters for 40 Years"

Circle No. 41 on Reader Service Card for more information

**BUY FROM YOUR  
REFRIGERATION WHOLESALE**

## OVER THE COUNTER . . .

*Continued from page 20*

ing pressures are upon us again. Slower deliveries and impending shortages are again pushing up our inventory. True we must have things to sell but let's not forget that our success is based upon inventory turnover.

We are selling components for the most part — not complete items — therefore a balance of these components is necessary. Unless all the components are available so that an installation can be completed we may find it difficult to move these parts we have in stock. Last year the average inventory turnover of those REWA members who took part in the survey was only 4.2 times. That's getting pretty low.

### Check Inventory Monthly

I suggest another monthly score sheet for a quick check on your inventory trend. Inventory control systems are very important—they are a must. However, it is often desirable for the manager of a business to get the over-all feel of what is happening and this is difficult to do from detailed figures.

You should be getting an estimated inventory figure, based upon sales and purchases, from your auditor every month. If you are not, then estimate your inventory change. If your average cost of goods is 77%, take 77% of your sales for the month and call that your cost of goods. Divide the total amount of your month's purchases by this estimated cost of goods sold and enter the answer in your monthly score sheet. Obviously, if it is over 100% you have increased your inventory. The fluctuations of your inventory can be effectively spotlighted by a comparison of this monthly figure.

### Watch Industry Surveys

At this point I'd like to put in a plug for the monthly REWA surveys. The results of these surveys can be an extremely valuable tool for management. Participation in this survey not only points up industry trends and the strong and weak phases of your own business—it also forces you to take an analytical look at your own business once

a month. It is indeed unfortunate that so few REWA members take part—you're missing a good bet.

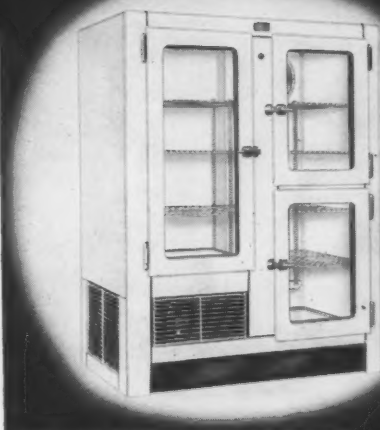
So much for those phases of our current problems over which we can exercise some direct control. But what of our taxes—a phase of ours as inevitable as it is costly. Continuing taxes are inevitable, but I am not convinced of the inevitability of sizable yearly increases in the amount of our taxes. Taking advantage of every little legal loophole—shooting tax angles—has been the common, accepted thing to do. However neces-

sary we feel such a practice may be to our survival, I believe that it is fundamentally abhorrent to the average American businessman.

I believe the time is coming when we will stop taking sedatives and pain relievers and will do something about the basic cause—demand efficiency and economy in government. Since we are faced with several years of astronomical expenditures for defense we must find some way of paying the bill without destroying our national economy.

Regardless of our political affilia-

## At New Low Prices **KOCH** Self Contained, Reach-in Refrigerators



### PORCELAIN INSIDE and OUT

MODEL 3842 (42-cu. ft.) with Glass Doors

Also Available as Model 3865 (65-cu. ft.)

All models self-contained, with 5-year warranty on motor compressor.

1/2 h.p. unit furnished with Model 3842. 1/2 h.p. unit furnished with Model 3865.

#### STANDARD EQUIPMENT INCLUDES:

Solid doors  
Adjustable wire shelves throughout  
Interior lighting

#### OPTIONAL EQUIPMENT INCLUDES:

One or more doors triple-glazed  
Meat rails and hooks behind long door  
Bakery bun pan racks

Get the NEW DEALER Proposition, Today!

# KOCH

refrigerators, inc.  
NORTH KANSAS CITY 16, MO.

Circle No. 42 on Reader Service Card for more information

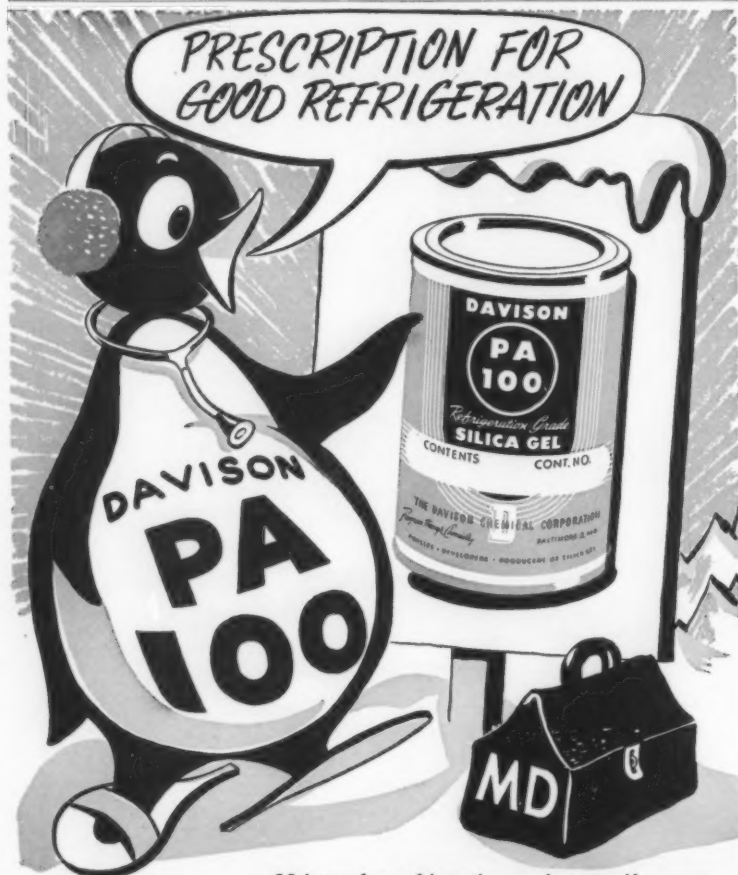
tions we must make Congress realize that efficiency and economy in government is not a political issue but a question of national survival.

As small businessmen we have the responsibility of survival—both the survival of our country and our own business. There are no independent small businessmen in a totalitarian state. The successful small business, started from scratch by an ambitious, hard-working free man — often a union card holder— is the best example of democracy at work.

We who have chosen to be small

businessmen, aware of the advantages possible and the risks involved, must also accept the responsibility. We cannot let the new and great world responsibility thrust upon our country throw us. Let us watch our own business closely and pull them and ourselves through the trying times ahead.

Let us insist upon the same close scrutiny of the operation of our government at every level. Let us thank God we are small businessmen in America and seek His help in successfully meeting the problems ahead.



Moisture free refrigeration can be yours if you use PA-100. Tests prove PA-100 can dry refrigerants to moisture levels that cannot be reached by other refrigerant drying agents. And PA-100 cannot cause corrosion . . . actually helps prevent it by removing corrosive compounds from the system.

There need be no worry about caking, dusting, deliquescent or channeling refrigerants with PA-100.

Prescribe PA-100 for your moisture problems. Available from your jobber in cartridge or bulk can.

Progress through Chemistry

**THE DAVISON CHEMICAL CORPORATION**

**D**

Baltimore 3, Maryland

PRODUCERS OF: CATALYSTS, INORGANIC ACIDS, SUPERPHOSPHATES, PHOSPHATE ROCK, SILICA GELS, SILICOFLOURIDES AND FERTILIZERS

Circle No. 43 on Reader Service Card for more information

## FLOWERS DON'T BLOOM . . .

*Continued from page 32*

bilities, since most florists are willing to forego the old expensive hand method of controlled plant growth for the modern refrigeration method.

A survey of downstate Illinois has indicated that very few commercial florists were using cooling buildings but that this new principle in controlled plant development is gaining in popularity and acceptance since the experiment in Decatur has proved to be such a success.

Hubbell Metals, Inc. (Formerly Brass And Copper Sales Co.) of St. Louis supplied the refrigeration equipment used in this experiment.

## SPEARHEAD FOR SALES . . .

*Continued from page 29*

right freezer, nothing else," Lee emphasizes. "Of course, if the restaurant, hotel or store manager wants a walk-in freezer or a custom built freezer-counter—we build such "tailored" units as well as handling a full line of commercial refrigeration equipment—we're glad to sell it to him. But we get that sale only after we are firmly "in" with the customers."

While newspaper display and classified advertising is used to some extent to promote upright freezer sales, the main advertising effort is put behind direct mail, with a follow-up by a salesman. "Without a personal follow-up, direct mail is not worth the cancelled postage stamp," Lee declares.

Direct mail letters are pegged at a particular type of customer. To the fish and bait prospects, a five point letter tells how the fish and bait sellers can increase their profits at least 50% by using an upright storage freezer. Bakeries, hotels and restaurants receive different letters slanted to their particular requirements.

All letters are sent out in small batches, carefully timed to precede a salesman's visit.

## BRYANT JOINS ACRMA

Bryant Heater Division of Affiliated Gas Equipment, Inc., Cleveland, has been elected a member of the Air Conditioning and Refrigerating Machinery Association.



## MOTOR TROUBLES . . .

*Continued from page 35*

tion the motor will not start. On the other hand, if stuck in the closed position the motor will not attain speed and the starting winding quickly heats up.

The motor may also fail to start if the contact points of the switch are out of adjustment or coated with oxide. It is important to remember, however, that any adjustment of the switch or contacts should be made only at the factory.

Commutator-type motors require more maintenance than the non-brush type. High speed series wound motors should not be used on long, continuous duty cycle applications because the commutator and brushes are a potential source of trouble.

Gummy commutators and oil-soaked brushes can cause sluggish action and severe sparking. The commutator can be cleaned by using fine sand paper, but if pitted spots still appear after cleaning, the commutator should be reground.

## DEPT. STORE BUILDS FISH STORAGE ROOM

A modern fish storage room lined with 7,000 board feet of Fiberglas low-temperature insulation has been completed at Tiedtke's department store and food market in Toledo.

The room is part of an improvement program Tiedtke's has under way, which also includes installation of a modern kitchen to serve the store's restaurants.

As part of its food operation Tiedtke's offers a variety of fish and has sold as much as two tons of fish in a single day.

One-half of the 15 by 14 by 8 foot fish room will contain fish frozen at 0 F temperature and the remainder will be used to store fresh fish at a temperature of 35 F.

In the low temperature installation, Fiberglas Asphalt Enclosed Board was applied to ceilings in 6 inch thicknesses; to walls in the 0 F section, 6 inches thick; and to walls of the 35 F area, 4 inches thick.

AE Board (floor) was applied to the floor in a thickness of 6 inches

in the 0 F area and 4 inches in the 35 F section and covered with 3 inches of reinforced concrete.

The insulating material was dipped in hot asphalt and pressed firmly in place. The first layer was secured by nails and fiber washer and the second and third layers were fastened with wooden skewers.

Prior to installation of the insulation, a paper vapor barrier was applied to walls and ceilings. This barrier forms a complete envelope around the refrigerated space, according to John G. Saalfeld of Serv-

ice Products, Inc., Toledo, which firm insulated the fish room.

Inside walls and ceilings were finished with plaster and the exterior with wood sheathing. The refrigeration unit is a blower-type gas refrigerant.

## NEW TRANE CONTROLLER

Herbert S. Hopkins has been named controller of The Trane Co., La Crosse, Wis. Hopkins was formerly associated with Ernst & Ernst.



*"Keep cool with ESTON!"*



**METHYL CHLORIDE  
SULFUR DIOXIDE**

Distributor of "Kinetic" Chemicals "Freon" refrigerants.

"FREON 11"—"FREON 12"  
"FREON 21"—"FREON 22"  
"FREON 113"—"FREON 114"

In Standard Containers



NO CYLINDERS • NO DEPOSITS  
**Charg-A-Can**  
RECHARGEABLE CONTAINER WITH  
"FREON 12"—"FREON 114"  
SULFUR DIOXIDE

**ESTON CHEMICALS, INC.**

3100 E. 26th St. Los Angeles 23

SALES OFFICES

IN ALL PRINCIPAL TRADING AREAS



ESTON REFRIGERANTS ARE FOR SALE BY LEADING REFRIGERATION WHOLESALERS EVERYWHERE

Circle No. 44 on Reader Service Card for more information





## TO REPLACE CARBON TET

FOR  
SHOP USE  
  
SEE YOUR  
LOCAL JOBBER



3307 Popular Triple

**Federal**  
the complete line  
for every refrigeration  
need . . .

- the name that's known all over the nation.
- smartly designed, for efficient performance.
- pioneers in refrigeration.

Write today for available  
Federal DEALER TERRITORIES.

FEDERAL REFRIGERATOR  
MANUFACTURING CO.  
WAUKESHA, WISCONSIN

**Federal**  
REFRIGERATORS

Circle No. 46 on Reader Service Card

58

## USEFUL

## BULLETINS • BOOKLETS • CATALOGS

The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

**TV Conditioning . . .** Air distribution problems in television studios is the subject of this interestingly illustrated 4-page folder released by Barber-Colman Co. Actual application photos of TV studios show how various types of air distribution outlets have been used to solve the tricky design problems involved.

Circle No. 100 on Reader Service Card

**Heat Exchangers . . .** A new line of heat exchangers suitable for either Freon-12 or Freon-22 and available in 11 models with capacities from 3 to 200 tons is described and illustrated in a four-page catalog (No. 1313) available from Acme Industries, Inc. Complete selection procedure is outlined and specifications are provided. Curves showing superheat performance, suction gas pressure drop, and correction multiplier for pressure drop also are included.

Circle No. 101 on Reader Service Card

**Solenoid Valves . . .** Detailed specifications covering a line of solenoid valves, both direct acting and pilot operated, are presented in a four-page bulletin (No. 77) published by Electromatic Co. Dimensional drawings and capacity charts for each type are shown, along with detailed instructions for installation and service.

Circle No. 102 on Reader Service Card

**Store Shelving . . .** The "Pre-Bilt" line of wall shelving, streamlined gondolas, and shelf uprights for non-refrigerated display in all types of food markets is described and illustrated in this 12-page catalog issued by S. A. Hirsh Mfg. Co. Mechanical details are shown and dimensional diagrams provided. Three easy assembly steps are illustrated.

Circle No. 103 on Reader Service Card

**Controls . . .** A page of engineering data including temperature conversion chart, solenoid electrical ratings, and approximate pressure control settings for a wide variety of applications is featured in the 20-page catalog of refrigeration and air conditioning controls produced by General Controls Co.

Circle No. 104 on Reader Service Card

**Cooling Towers . . .** The 1952 line of "Standard" series induced draft cooling towers is covered in Bulletin S-101 released by Havens Structural Steel Co. Selection, dimensional and other engineering data for use in applying these towers to refrigeration and air conditioning jobs of 2 tons capacity and up is featured.

Circle No. 105 on Reader Service Card

### FOR PRODUCT DESIGNERS

A 16-page catalog prepared especially for product designers' use has just been published by Chicago Metal Hose Corp. (Flexonics Corp.). This catalog was prepared to give complete descriptions and specifications of the many products manufactured by this company for use by original equipment manufacturers. It is designed for quick and ready reference to pertinent information on metallic bellows, flexible metal hose and tubing, flanges, couplings, fittings, and similar products. Copies of this bulletin may be obtained by writing directly to Flexonics Corp., Maywood, Ill., on your business letterhead.

**Food Cases . . .** From display cases to walk-in coolers, a complete line of commercial refrigeration equipment for food storage and display is covered in a pocket-size brochure made available by Warren Co.

Circle No. 106 on Reader Service Card

**Spot-Cooling Device . . .** Three models of Belmont Hilsch Vortex Tubes are cataloged in a new leaflet (V-2-551) available from Thermo Instruments Co. Text describes how these devices employ an internal vortex to separate a flow of compressed air or gas into hot and cold fractions for such functions as calibrating instruments, cycle-testing equipment, cooling thermocouples, etc. Specifications are tabulated and prices listed.

Circle No. 107 on Reader Service Card

**BUY FROM YOUR  
REFRIGERATION WHOLESALE**



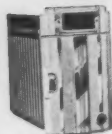
**Mr. A. M. SCHWARTZ**

*President, A. M. Schwartz, Inc., Cincinnati, Ohio*

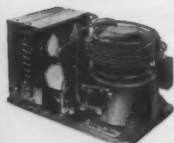
# Looks Back on 24 Years -Looks Forward with **Kelvinator**

**Profit By The Experience Of Long-Established Refrigeration Men—For Minimum Costs, Trouble-Free Performance, Choose Kelvinator Units And Parts!**

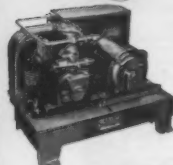
**You, Too, Will Build Better Business  
With Kelvinator Equipment!**



**Kelvinator Stainless  
Steel Evaporators**



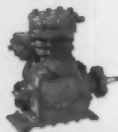
**Kelvinator Sealed  
Type Condensing  
Units**  
( $\frac{1}{8}$  H. P. to  $\frac{1}{2}$  H. P.)



**Kelvinator Open  
Type Condensing  
Units**  
( $\frac{1}{8}$  H. P. to 5 H. P.)



**Kelvinator Silica  
Gel Driers**



**Kelvinator  
Compressors**  
( $\frac{1}{8}$  H. P. to 5 H. P.)



**GET YOUR COPY!**  
Handy Catalog of  
Refrigeration Sup-  
plies. Here's the  
quick, easy way to  
buy genuine Kel-  
vinator refrigeration parts and  
supplies! All information is  
grouped for easy reference. Ask  
for it at your local Kelvinator  
Distributor or Zone Parts Depot.

**A. M. SCHWARTZ, INC.**

*Refrigeration*

**Kelvinator**

SALES - COMMERCIAL SERVICE

2019 Building Road

Urbansville 5708

Cincinnati 2, Ohio

Condensing Units  
Steam Cabs  
Water Cabs  
Refrigerators  
Freezers

**June 28, 1951**

**Nash-Kelvinator Corp.  
14250 Plymouth Road  
Detroit 32, Michigan**

Gentlemen:

This will answer your inquiry concerning our use of Kelvinator parts and equipment.

In refrigeration service, time is money -- so we can't afford to lose time. Prompt, courteous service and an adequate stock of quality parts at reasonable prices -- no waiting and a minimum of back-ordered items -- those are the first things to consider when you're doing business with a parts supplier. Kelvinator's local operation measures up to our standards in every respect.

During the past 24 years our association with Kelvinator products has embedded in our minds the true value of quality and precision used in their manufacture, insuring our users low cost of maintenance and extra years of service.

Yours very truly,

*A. M. Schwartz*

**A. M. Schwartz, Inc.**

Air Conditioning . . . Temples Beer Cooling . . . Walk-In Boxes Built On The Job . . . Commercial Equipment For All Purposes

**Profit Today... Build for Tomorrow with**

# **Kelvinator**

**The Name that Sells... The Name that Satisfies!**



**KELVINATOR  
ICE CREAM  
CABINETS**



**KELVINATOR  
FROZEN  
FOOD  
MERCHANDISERS**



**KELVINATOR  
WATER  
COOLERS**



**KELVINATOR  
BEVERAGE  
COOLERS**



**KELVINATOR  
AIR  
DRIERS**

Circle No. 47 on Reader Service Card for more information  
and **AIR CONDITIONING • FEBRUARY, 1952**

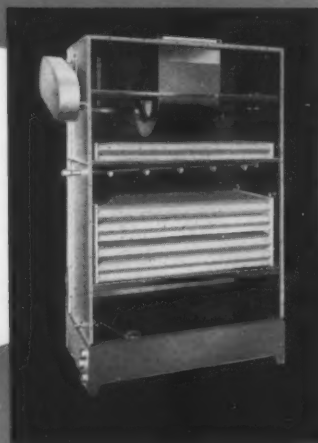
# Save both ways...

## IN INSTALLATION COSTS • IN OPERATING COSTS

### EVAPORATIVE CONDENSERS • COOLING TOWERS



Standard Grocery Co. installation, Indianapolis, Ind.

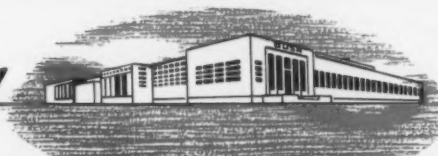


You'll find Bush Evaporative Condensers and Cooling Towers offer the smart refrigeration man the important "extras", in many ways, extras which help sell the job . . . increase your profit.

For example, low head room required and small floor area per ton. Sectionalized cases in larger units permit movement through standard doorways eliminating costly re-building expenses. Fans and Pumps selected for maximum efficiency result in lower operating costs. Increased machine efficiency at lower head pressures adds still another "extra." Bulletin 510 describing these units is free upon request. After reviewing the Bush line of Evaporative Condensers (5-75 tons) and Cooling Towers (3 to 75 tons) you'll understand why, in all ways, the Best is Bush.

## Bush Manufacturing Company

WEST HARTFORD 10, CONNECTICUT



Since  
1907

Circle No. 48 on Reader Service Card for more information

**NEW**

# PRODUCTS

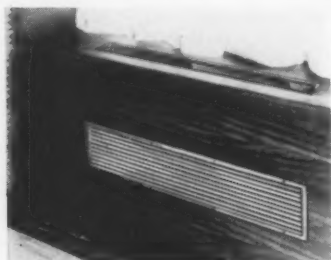
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

## Convactor Grilles

**Product:** New line of convactor grilles custom designed to sell at standard prices.

**Manufacturer:** Titus Mfg. Corp., Waterloo, Iowa.

**Features:** Ruggedly constructed to withstand the heavy use which lower wall grilles must take. Louvers



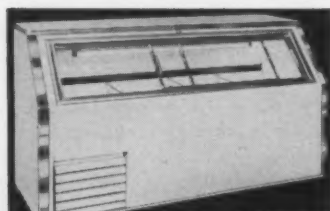
spaced closely to prevent waste paper and similar materials from being dropped between them. Extra-heavy support bars on 6-inch centers give added strength. Made to any size. Have over 70% free area. Can be installed in marble, tile, or other special surfaces. Extra-wide blades for deflection of air. Each blade "hemmed" for strength and added safety. Available with damper and knob control.

Circle No. 130 on Reader Service Card

## Counter Case

**Product:** Model CV-40 counter and display frozen food case.

**Manufacturer:** Howard Refrigerator Co., Inc., Philadelphia, Pa.



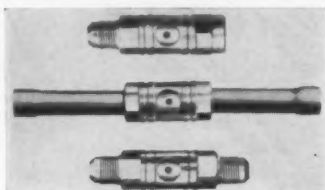
**Features:** Comes completely equipped with mother-of-pearl Formica top trimmed in ripple chrome. Interior of case has fluorescent light with individual switch and upper section of back wall is faced with full length polished angle-plated mirror. Formica top may be adjusted to overhang on either front or back. The two doors are constructed of clear glass framed in high polished chrome riding on a stainless steel track. Finished in white baked enamel. Equipped with 1/3-hp Tecumseh condensing unit. Measures 40 inches high, 29 inches wide, and 71 inches long.

Circle No. 131 on Reader Service Card

## Liquid Indicator

**Product:** Newly designed Series 200 "Liquid Eye" indicator.

**Manufacturer:** Allin Mfg. Co., Chicago, Ill.



**Features:** Brass housing and ends machined to exact tolerance. High pressure Pyrex glass tube is ground and lapped by an exclusive process. Gasket material remains impervious to refrigerants and oils, and will not swell or decompose as the result of chemical action, and is not affected by silver soldering when performed according to instructions. Glass tube spring mounted for shock resistance. Method of seating gasket against ends of glass prevents glass from touching housing. Housing extends about 1/16-inch above glass to protect it against breakage. Assembly completed with

torque wrenches to secure absolute uniformity. Weight reduced about 35%, thereby reducing fatigue factor of liquid line. Available with male flare ends, female to male flare ends with copper flare insert in female end, or sweat connection.

Circle No. 132 on Reader Service Card

## Check Valve

**Product:** Non-corrosive check valve for Coldsport units, both sealed and semi-sealed.

**Manufacturer:** Sealed Unit Parts Co., Inc., New York, N. Y.

**Features:** Construction features include all brass shell, nylon seat, and



#CK 400  
(sealed)

#CK 411  
(semi-sealed)

stainless steel ball. Designed to last much longer than ordinary valves because of its non-corrosive qualities with the various acids formed in sulphur dioxide systems.

Circle No. 133 on Reader Service Card

## Reach-In Door

**Product:** Redesigned and improved "Display-All" glass refrigerator door.

**Manufacturer:** American Glass Refrigerator Door Co., Los Angeles, Calif.



**Features:** Places emphasis on efficient insulation and sound refrigerator design, while providing the beauty of polished aluminum and



the unobstructed display qualities of glass. Uses two-light Thermopane glass panels framed with a combination of highly polished extruded aluminum and heavy extruded rubber insulation. Assembled in such a manner that only rubber and glass are exposed to fixture interior and polished aluminum and glass exposed to public. Built in units, each consisting of a 23 x 52½-inch mullion frame and door. On application, manufacturer can interlock as many frames as desired, without use of screws or bolts. Frames are secured

into fixture opening with concealed wood screws. Doors are hung in place by snapping on to full-length aluminum piano hinges. Chrome plated die cast latch handles are graceful but sturdy.

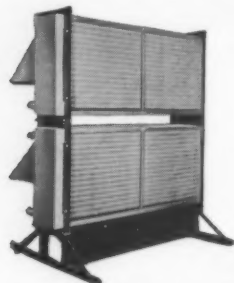
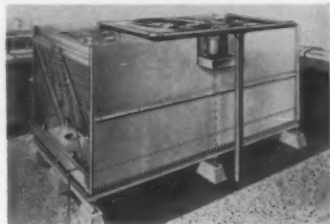
Circle No. 134 on Reader Service Card

#### Cooling Tower

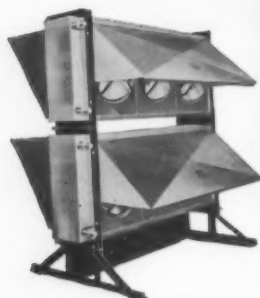
**Product:** "Double-Flow Aquatower" water cooling tower for use wherever intermediate capacities of cold water are required.

**Manufacturer:** Marley Co., Inc., Kansas City, Mo.

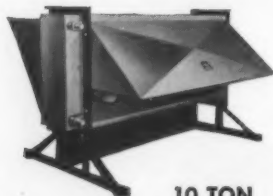
**Features:** Low height (only 7½ feet for 150-ton unit) detracts little or nothing from the appearance of



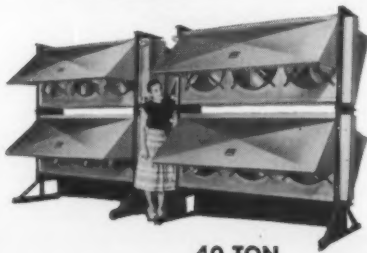
20 TON



20 TON



10 TON



40 TON

SPECIAL APPLICATIONS — Write to us about your condensing problem.

WRITE FOR BULLETIN U-177-S

**KRAMER TRENTON CO. • Trenton 5, N.J.**

Circle No. 49 on Reader Service Card for more information

*Cut out all*  
**WATER**  
*problems*  
WITH THE  
**UNICON**  
*by* **KRAMER**

The UNICON eliminates all water problems . . . because it does not require any water. Any size compressor, regardless of tonnage, can be air-cooled with the UNICON by KRAMER. Stands, hood, and wind deflectors are available for simplified outside mounting of this Remote-Type Air-Cooled Condenser.

buildings. Pumping head and required fan horsepower are extremely low for any given capacity and design performance. With patented "Double-Flow" principle, one fan utilizes air from two completely open sides. Tower weight is evenly distributed over wide area. Design simplifies maintenance and inspection. All parts readily accessible. Available in seven standard sizes, starting with 50-ton unit. Available in all steel or wood with asbestos cement board casing.

Circle No. 135 on Reader Service Card

#### Condenser Water Valve

**Product:** Redesigned Marsh-Electrimatic condenser water regulating valve.

**Manufacturer:** Electrimatic Co., Skokie, Ill.

**Features:** Manual flushing feature provides simple and efficient method of removing harmful dirt and



grit from line after valve has been installed. Flushing operation can be accomplished by turning adjustment screw up as far as possible and inserting screwdriver between adjustment screw and top of push pin. The push pin can then be pryed down and the valve held open. After valve has





## *They Weren't Stubborn...They Just Didn't Believe It Was Impossible*

Thank goodness there are still fellows around who aren't satisfied with just "good enough"!

Most people in the air conditioning trade figured that the various types of pumps used to recirculate water in air conditioning systems were doing a good job. And when compared, pump for pump, this was true. But then some hard-to-convince engineers at I-R reasoned that if they could design a *smaller* pump that would do the same work as ordinary pumps of *higher* horsepower... *that* would really be something. Such a pump would save on first cost. It would have the operating economy of a *smaller* pump. Also, it would bring down installation costs, while doing a better all-around air conditioning job. So the "unbelieving engineers" at I-R went to work.

When they told us, "Here it is," the skeptics wanted proof. Then they showed us improvements in design, construction and materials. What's more, they produced a line of Ingersoll-Rand MOTORPUMPS which, size for size, proved to be *more efficient and reliable* than any other type pump on the market!

The I-R MOTORPUMP has already opened the eyes of many architects, designers, and air conditioning contractors. It's available out of warehouses across the country. And these same outlets offer service on every I-R MOTORPUMP specified or installed. Get the facts now... ask your nearest I-R distributor or representative about them. Meantime, write for free descriptive literature. Ingersoll-Rand Company, 11 Broadway, New York 4, New York.



# Ingersoll-Rand

90 years of BIG PUMP know-how packed into small pumps for air conditioning applications!

## MOTORPUMP

615-9

been thoroughly flushed it can be re-set by simply removing the screw-driver and setting the adjustment screw at the desired head pressure.

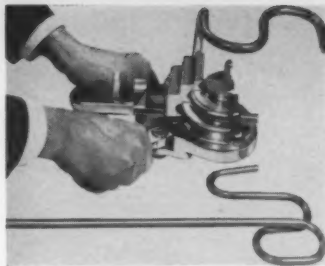
Circle No. 136 on Reader Service Card

### Tube Bender

**Product:** "3-in-1" tube bending tool.

**Manufacturer:** Tal Bender, Inc., Milwaukee, Wis.

**Features:** Efficient tool for making perfect offsets and bends up to



180 degrees in  $\frac{3}{8}$ ,  $\frac{1}{2}$ , and  $\frac{5}{8}$ -inch o.d. K and L copper tubing, brass, steel, and other light gauge tubing. Made from special strong light-weight

metal, tool is fast and simple to operate. No vice or fixtures required. All three sizes are combined in single tool. No loose parts. Weighs only 5 pounds.

Circle No. 137 on Reader Service Card

**Now a new name  
to start our second half century . . .**

**CHICAGO  
METAL HOSE  
CORPORATION**

**Sales operations are divided  
into four logical divisions**

#### CHICAGO METAL HOSE DIVISION

Corrugated and convoluted flexible metal hose, machine tool conduit, refrigeration conduit, "Vibra-Sorber" vibration eliminators for piping, and assemblies for specific applications.

#### AIRCRAFT DIVISION

Stainless steel aircraft components including hose of all types, bellows, oil and fuel lines, air lines, ducting and connectors of all types and many special assemblies for jet aircraft.

#### FLEXON BELLOWS DIVISION

Stainless steel bellows, brass and bronze bellows, automobile thermostats and bellows and bellows assemblies and devices for all types of standard and specialized applications.

#### EXPANSION JOINT DIVISION

Standard corrugated packless type expansion joints in free-flexing and controlled-flexing construction, high pressure Flexoniflex expansion joints, heat riser expansion joints, and special joints.

**Flexonics**  
*Corporation*

● In 1947, Chicago Metal Hose Corporation introduced to industry a new science—the science of Flexonics. It is defined as the controlled bending of thin metals for use under varying conditions of temperature, pressure, vibration and corrosion. This definition so well describes our operations and the expanding range of our products that we are adopting it as our corporate name coincident with our 50th anniversary year.

Let us assure you, however that the change from Chicago Metal Hose Corporation to Flexonics Corporation involves no change in management, personnel or methods of operation except for internal organizational changes that will make it possible for a fast growing company to serve its customers better.

**Flexonics**  
*Corporation*

Flexon identifies  
CMH products that  
have lasted industry  
for over 50 years.



FORMERLY CHICAGO METAL HOSE CORPORATION

Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components. In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

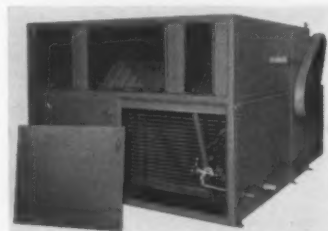
Circle No. 51 on Reader Service Card for more information

### Multi-Zone Units

**Product:** Multi-Zone air conditioning units.

**Manufacturer:** Kennard Corp., St. Louis, Mo.

**Features:** Designed to provide heating or cooling as required by zones. Each zone operates independently of the other, furnishing either



cool or warm air as desired. This is accomplished by individual control of separate built-in face and bypass dampers for each zone and by arranging the heating and cooling coils in parallel rather than in series as normally used. Available in sizes up to 19,800 cfm, with special features of penta-post frames, sectionalized construction, multiple service access panels, and moisture-sealed insulation.

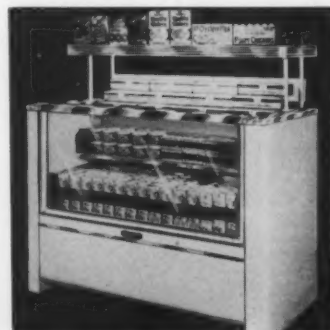
Circle No. 138 on Reader Service Card

### Dairy Case

**Product:** Model EGFD dairy case.

**Manufacturer:** Eskimo Kooler Corp., Chicago, Ill.

**Features:** Forced air refrigeration, including refrigeration in both



shelves. Will hold approximately 212 quarts of milk. Measures 56 inches long, 30 inches wide. Full view Thermopane front. Designed for all types of stores. Self contained with pull-down front panel for easy accessibility to compressor. Stainless steel top prevents scratches and wear. Merchandising shelf on top is standard equipment at no extra charge. Ideal for small stores where space is limited, or in large stores for location at end of gondolas or for spot selling of featured dairy products.

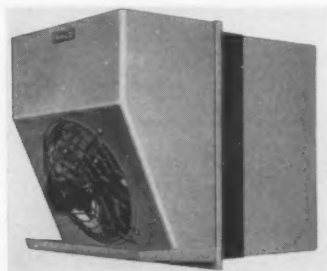
Circle No. 139 on Reader Service Card

### Packaged Cooler

**Product:** Easily installed package refrigeration unit for walk-in coolers.

**Manufacturer:** Kool-Rite Co., Roberts, Wis.

**Features:** Each unit is an entirely self-contained refrigeration plant and can be installed and operating in approximately one-tenth the time re-



quired by conventional systems. When installation is complete, immediate refrigeration is obtained by plugging the unit in to a standard electrical outlet. There are no valves to open or close when placing the unit in operation. Suitable for both new and replacement installations. Special "super-cooling" design utilizes condensate from evaporator coil to cool condenser. Dehydration of stored goods is eliminated by directional air flow control. Available in five sizes from 1/4 to 1 hp. Designed for use with all types of food products, beverages, floral merchandise, etc.

Circle No. 140 on Reader Service Card

### Heat Exchangers

**Product:** "HX-Changer" units for heating and cooling any combination of liquids and vapors.

**Manufacturer:** Rempe Co., Chicago, Ill.

**Features:** Shell and coil assembly having a basic rating of from 98 to 1760 Btu per hour. Incorporate new sub-cooling feature which promotes greatest heat transfer efficiency. Made with 6 5/8-inch and 8 5/8-inch shell. Body is ASME welded construction. Coil tubes are copper on all sizes, except when made for oil treating, in which case steel coil is furnished. All steel construction is recommended for ammonia refrigerant service. Connections on shell are extra heavy steel

couplings. Coil connections are IPS male thread. All units tested 350 pounds pressure. Practical for such applications as water cooled refriger-

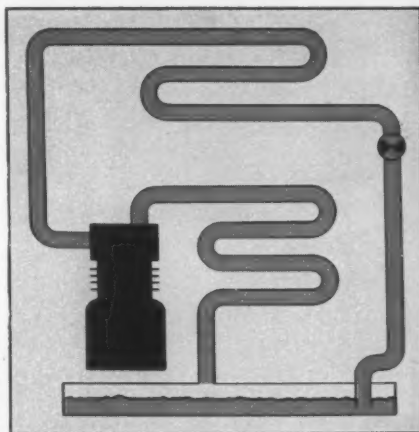


ant condensers, converting air cooled compressors to water cooled service, refrigerant to refrigerant heat exchangers on low temperature cascade and two-stage systems, cooling lubri-

# TRAVELS TO ALL THE WATER

## ...AND DESTROYS WATER

You're sure to reach all the moisture with Thawzone. It travels to every part of the system. Thawzone circulates through all the kinks, traps and elbows of the unit. Trapped moisture is bound to be reached.



GOES WHEREVER WATER GOES

For "Freons" or Methyl

### Callbacks Lose Customers

You cut down customer-killing callbacks by reaching all the moisture the first time. Moisture can remain trapped right in the expansion valve with the usual drying methods. It may break loose 24 hours later. That's a callback you won't have if you use Thawzone.

### Only Thawzone Destroys Water

Water is actually destroyed by Thawzone. It's the only product in the refrigeration field that does this. The Thawzone patent includes the destruction of water. This means that the water is gone for good. So, no matter how hot the weather, Thawzone can't give off moisture.

Any unit using "Freons", methyl chloride, methylene chloride, "Carrene" or isobutane can be dried with Thawzone. Use 1 teaspoonful (1/2 oz.) per pound of refrigerant. Use half as much in hermetic units. Thawzone is actually the lowest cost method of removing moisture. Your wholesaler has Thawzone. Highside Chemicals Company, Clifton, N. J.



# THAWZONE®

The Only Product That  
Destroys Water...  
and Reaches All of it

Circle No. 52 on Reader Service Card for more information

cating oils using refrigerant, and water chiller using refrigerant as cooling medium.

Circle No. 141 on Reader Service Card

#### Room Cooler

**Product:** Model G7D ¾-hp room air conditioner.

**Manufacturer:** Quiet-Heat Mfg. Corp., Newark, N.J.

**Features:** Cooling capacity for rooms up to 450 sq.ft. in size. ASRE rating of 8650 Btu/hr at inside tem-

perature of 80 F d.b., 67 F w.b., and outside temperature of 95 F d.b., 75 F w.b. Circulates 310 cfm of air, introducing 80 cfm fresh air for ventilation. Room air drawn through lower grille on front of cabinet, eliminating interference with curtains or drapes. Conditioned air discharged through upper grille can be directed up or down to eliminate drafts. Hermetically sealed Tecumseh

**BUY FROM YOUR  
REFRIGERATION WHOLESALE**

condensing unit. Cabinet of high grade rust-proofed steel finished in baked enamel. Two-row evaporator design provides maximum efficiency in minimum space. Evaporator fan is pressure-type blower wheel which specifically overcomes static resistance when filter becomes laden with dirt. Gives additional evaporative cooling by spraying moisture taken from the air over the condensing coils, making the unit more effective as the humidity increases. Aluminum mesh viscous coated filter accessible by simply lifting cabinet. Switch and damper controls at front where they are always accessible. Thermostat optionally available to control cooling cycle. Easily installed in any double-hung window over 28¾ inches wide.

Circle No. 142 on Reader Service Card



**This UNIT goes with me  
on Every call!**

I can diagnose moisture trouble in a few minutes—cure it fast—and know the system is dry and clean when I leave!

## DFN MOISTURE CONTROL UNIT

**Saves time—saves callbacks on servicing jobs or new installations**

When a system "acts up" or shuts down, always suspect moisture. Eliminate guesswork—find out in a few minutes with the DFN Moisture Control Unit. If the Indicator shows dry—look elsewhere for the trouble. If it shows wet, you can have the system running efficiently in a single pass of the refrigerant through the Unit.

The DFN Moisture Control Unit is a versatile service tool—proven by thousands in use. It consists of a large cartridge type drier, a moisture indicator and controls, mounted on a handy carrying panel. Takes up and holds over 18 teaspoonfuls of water. Services many jobs in field, shop or factory. Filters all sludge, solder flux and foreign matter. Designed for liquid line installation, it dries efficiently at refrigerant temperatures up to 150° F—dries to minus 60° dew point in a single pass.

See the DFN Moisture Control Unit at your wholesaler—or write us for Bulletin C-2.

For high-capacity, permanent installation, use

#### McINTIRE DC Cartridge Type FILTER-DRIERS

Guaranteed moisture ratings assure extra capacity for peak summer loads. Dries efficiently up to 150° F. Low-cost cartridge replacement saves money, saves critical materials. Readily obtainable at your wholesaler.

#### Milk Display Cabinet

**Product:** "Dari-Vend" Model 192 refrigerated milk display cabinet.

**Manufacturer:** General Vending Machine Corp., Chicago, Ill.

**Features:** Compact, self-service unit with capacity of 192 quarts double-stacked. Measures only 51½ inches wide x 21½ inches deep, by



54 inches high, including canopy. Mezzanine shelf in canopy for non-refrigerated but related items is 7 inches wide by 48½ inches long. Powered by ½-hp Tecumseh hermetically sealed condensing unit. All steel welded construction. Fluorescent lights under canopy. Mirrored back for mass display. Glass side "wings." Fiber-board night cover. Wrap-around refrigeration coils. Fiberglass insulation. Delivered ready to plug in. Baked enamel finish.

Circle No. 143 on Reader Service Card

**BUY FROM YOUR  
REFRIGERATION WHOLESALE**

Our 27th Year **McINTIRE CONNECTOR CO.**, 257 Jefferson St., Newark 5, N. J.



**DRIERS** . . . all types and sizes, up to 100 tons  
MOISTURE CONTROL UNIT    MOISTURE INDICATOR  
STRAINERS    FILTERS

Circle No. 53 on Reader Service Card for more information



## RANCO'S CATALOG HAS WHOLESALER IN MIND

"Designed with the wholesaler in mind" is a description that really fits the new catalog on its full line of commercial and domestic refrigeration controls recently developed by Ranco, Inc.

The thing that is new about this catalog is that it fits into a wholesaler's counter catalog and always reads, in order of importance, from the margin into the center.

The marginal area on each page of the catalog serves as an index, and the next column is consulted as more information is needed. Finally, and only when the exact code desired has been located, is it necessary to dig down into the inside margin of the page for information.

"Most wholesalers' counter catalogs are so full of manufacturers' sheets that it is practically impossible to get down into the center of any single page for information," says G. E. Graff, Ranco's sales manager. "We believe this catalog will be of great help to wholesalers and also a help in promotion of our products."

## REMCO GOES TO SEA

Announcement has been made by Remco, Inc., Zelienople, Pa., of the selection of its "E-Z-See" liquid indicators for use as sight indicators on the giant new S. S. United States.

## GUESS WINS PRIZE



ACCURATE CALCULATION of the time required for a Remington 1½ hp dehumidifier to fill a one-quart bottle with condensate won one of the company's Model K units for W. R. Fraser (left), sales manager of Emerson Electric Co., St. Louis, who is being presented with his award here by R. E. Hudson, Remington regional manager in St. Louis. Mr. Fraser's computation was 2 hours and 10 minutes; the actual time required was 2 hours, 10 minutes and 37 seconds. The contest was conducted by Remington at the All-Industry Show in Chicago.

## 5-STAGE AMMONIA UNIT FOR CHEMICAL PLANT

The first large centrifugal ammonia compressor ever installed in this country will be used for process refrigeration at the Monsanto Chemical Co. Plant, Nitro, W. Va.

A five-stage Carrier centrifugal compressor driven by a 600 hp motor has been scheduled for installation in the Monsanto plant to double the capacity of an existing reciprocating ammonia system.

The new unit will serve as the low stage compressor in the Monsanto

refrigeration plant, taking the ammonia gas at 25 pounds suction pressure and discharging it to the high stage at 75 pounds. Addition of the centrifugal unit will increase system capacity from 400 to 800 tons.

The compressor will be of all ferrous construction for use with ammonia, and will be similar to those used for some years for air and gas compression in the petroleum and chemical processing industries.

**BUY FROM YOUR REFRIGERATION WHOLESALER**



## This new manual-flushing feature makes the Marsh-Electrimatic water regulator still better

Marsh does it again! This time it's a manual-flushing feature—latest in a long string of developments that put Marsh-Electrimatic condenser water regulators in a new class all their own.

To flush out the valve, simply turn up the adjusting screw to the limit of its travel; then insert a screwdriver as shown and pry the valve stem down to open the valve and flush out all dirt and grit from the line. By flushing out the valve after it is installed you assure dependable performance. It's one of those common-sense

provisions that can prevent a lot of trouble and headaches.

The manual-flushing provision is incorporated in the Type WP direct-acting regulator illustrated, and also in the Type WJ and WK pilot-operated regulators. Excellent feature though it is, it is only the finishing touch to a full line of condenser water regulators that today stand alone in their field.

The Marsh-Electrimatic line also includes three new series of highly perfected solenoid valves ideally suited for all conditions. Ask for literature covering complete details.

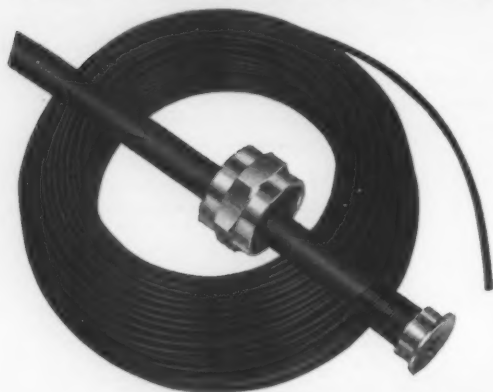
MARSH INSTRUMENT CO. Sales affiliate of Jas. P. Marsh Corp., Dept. P, Skokie, Ill.

## MARSH-Electrimatic



Circle No. 54 on Reader Service Card for more information

# NEW Flexlite TUBING REPLACES COPPER • BLOCK TIN • STAINLESS STEEL



Specially designed fittings make easy, quick, non-leaking, non-expanding, permanent connections, for carbonator, soda fountain and beer dispensing. Available in brass or stainless steel. Write for catalog and price list.



• Once you've used Flexlite Tubing, you'll never again bother with copper, block tin or stainless steel. Flexlite Tubing is a specially developed plastic—strong, long-lasting, flexible, easy to install and maintain, will not dry out, become brittle, peel or crack, unaffected by moisture or dryness and under normal conditions should last as long as any metal tubing. It is non-toxic, tasteless and odorless. It was developed for use with carbonated water, beer, syrups, CO<sub>2</sub> gas, but also has properties that permit its use with all types of fluids including oils and most acids. Melting point is 250°F. PSI 600 lbs. at room temperature of 70°F. PSI increases as temperature decreases.

## MONEY BACK GUARANTEED TRIAL ORDER

Order 100 ft. of 1/4" I.D. Flexlite Tubing for use as CO<sub>2</sub> gas, carbonated water or syrup lines. Use it—test it and unless you're completely satisfied, return any unused portion and we'll send you complete refund. Just think of the savings—only \$18.00 for 100 feet. Why worry about the copper, block tin or stainless steel scarcity.

Only  
**18¢**  
per foot

## HUDSON INDUSTRIES, INC.

4400 ST. AUBIN DETROIT 7, MICHIGAN TEL. 2-0715  
Manufacturers of the famous Hudson Carbonator & Soft Drink Dispensing Equipment

# MORE Service—



# LESS Servicing!



Model 1-131-A20

## SWEDEN SPEED FREEZERS

the  
FOUNTAIN  
FREEZER

## With SWEDEN—

TODAY—after more than 17 years' leadership in the ice cream freezing and dispensing field—SWEDEN Speed Fountain Freezers are still "years ahead," giving owners consistent, trouble-free service.

It's an old story—of advanced design and superior engineering, of pioneer testing and development. Automatic freezing controls for simple operation; sturdy construction and accessibility of all parts for quick cleaning are standard SWEDEN features that add up to MORE and LONGER service . . . LESS upkeep expense.

Dispensing Soft Ice Cream, Frozen Custard and other long-profit specialties with amazing speed, SWEDEN eliminates bulk shrinkage, requires less cream weight-per-serving. Dipping, handling and scraping are eliminated; both food and labor costs slashed 50% and more.

And remember—the SWEDEN line is really complete. There's a model to meet every need, every budget. SWEDEN's model variety adapts the machine to the operation, not vice-versa. SWEDEN Speed Fountain Freezers are profitable to own and operate . . . investments that pay for themselves out of EXTRA profits!

For more information, write today to:

**SWEDEN FREEZER MANUFACTURING CO.**  
DEPT. R-1 SEATTLE 99, WASHINGTON

# CONTRACTORS

NEWS • ACTIVITIES • PLANS

## Military Agency Seeks Way to Standardize Condensing Units

How the Munitions Board Standards Agency expects to standardize refrigeration condensing units for use by the military was indicated in a recent letter circulated by the agency.

The indications were contained in instructions to the Quartermaster Corps to use the following as a basic requirement for the standardization study of refrigeration and air conditioning equipment now being made by a task group of the agency:

"A. That standard type condensing units (self-contained) using open type compressors and air-cooled condensers be established on the following basis:

"(1) Interchangeable compressors having universal type bed plates and interchangeable valve bosses for use of standard inlet and outlet valves for given sizes.

"(2) Compressor speed and range limitations be determined to permit formulation of interchangeability.

"(3) Interchangeable mounting dimensions of condensers be determined.

"(4) Common bolting dimensions for complete condensing units with a limit height dimension be fixed.

"B. That standard type condensing units (self-contained) using hermetic compressor and air-cooled condensers be established on the following basis:

"(1) Interchangeable compressors having universal type bed plates and interchangeable valve bosses for use of standard inlet and outlet valves for given sizes.

"(2) Interchangeable mounting dimensions of condensers be determined.

"(3) Common bolting dimensions for complete condensing units with height dimension be fixed.

"(4) Interchangeable condenser fan motor and mounting.

"C. That standard type air-cooled compressor using water cooled condensers or in packaged unitary equipment, such as drinking water coolers, refrigerators, and self-contained air conditioning units be established as follows:

"(1) Open compressor.

"(a) Interchangeable compressor having universal type bed plates and interchangeable valve bosses for use of standard inlet and outlet valves for given sizes.

"(b) Compressor speed and range limitations be determined to permit formulation of interchangeability.

"(2) Hermetic compressor.

"(a) Interchangeable compressor having universal type bed plates and interchangeable valve bosses for use of standard inlet and outlet valves for given sizes."

The Standards Agency asked the Quartermaster Corps to obtain this information after the Subgroup for

Condensing Units of the task group reported that it could make no further progress without additional help.

This subgroup is one of six which are making separate studies of the entire refrigeration field.

The task group recommended that the detail work required to accomplish the study be contracted to an independent engineering firm for determination of the necessary factual data, according to Lt. Comdr. W. F. Moran, executive officer of the agency.

"Such data," he said in the circulated letter, "may only be obtained after studying physical characteristics of commercial equipment and attempting to arrive at ultimate standard characteristics which may easily be met by all manufacturers and used by all military activities."

### CPR 105 REGULATES USED MACHINERY PRICE

The Office of Price Stabilization has recently issued a new ceiling price regulation to cover sales of used industrial and construction machinery and related equipment, including air conditioning and refrigeration machinery of 25 hp and above.

The new regulation, CPR 105, applies to compressors and condensing units of 25 hp capacity and larger; dust collecting equipment of the industrial type; most industrial fans and blowers including warm air furnaces and attic fans; heat exchanger equipment designed for products covered by this regulation; all types of air temperature and humidity con-

## Head New Jersey Contractors



New officers of the Refrigeration Contractors Association of New Jersey for 1952 were installed at a party held at Hotel Douglas, Newark, in a ceremony conducted by Anthony G. Dietl, past president (1949 and 1950). Officers are (left to right): William Grush, National Appliance, Union, party chairman; John S. Sanok, Conditioning Co., Inc., Newark, secretary-treasurer; Michael Dee Petillo, Tony Petillo Refrig. Co., Nutley, president; Leo L. Richardson, Richardson & Richardson, Inc., Nutley, past president; Anthony G. Dietl, Dietl & Kraft, Newark, master of ceremonies; Silvio C. Filippone, Filippone Refrig. Co., Jersey City, vice president; Frederick Young, Nutley, executive secretary; and Harold Rohloff, Harold Refrig. Co., Dover, sergeant-at-arms.

trols, coin operated devices, and household refrigeration controls; and industrial water purifying equipment.

The ceiling price for rebuilt and guaranteed equipment is established at the rate of 85% of its applicable base price.

For equipment which is not rebuilt and guaranteed, the ceiling price is established at 55% of its applicable base price.

In either case, however, a ceiling price may be determined under a depreciation method prescribed for certain types of equipment listed in Appendix B, including all those mentioned above. Under this method, annual rates of depreciation, ranging from 3 to 30%, are applied to the base price.

### Used Equipment Ceilings

In the case of equipment which is not rebuilt and guaranteed, the depreciation method of pricing must not result in a ceiling price of more than 80% of the base price. Sellers determine used equipment ceilings by applying the specified percentages to the manufacturer's current published list price (base price) for the same or similar new equipment. In the absence of a manufacturer's current list price, an alternative list or cost price may be used for applying the percentages specified.

Where ceilings are determined under the depreciation method, the seller must furnish the purchaser with a statement containing an identifying description of the equipment, the name and address of the original purchaser, and the date it was acquired by the original purchaser.

Sellers must furnish purchasers with a detailed invoice covering each sale. If equipment is purchased or traded-in for resale purposes a detailed record of such equipment must be kept by the seller showing its final disposition or sale.

Ceiling prices for equipment covered by CPR 105 had previously been covered by the General Ceiling Price Regulation.

### N. Y. CONTRACTOR DIES

Frank Santoro of Santoro Bros., New York City refrigeration contractor firm, died suddenly recently at the age of 35. Death came suddenly while he was riding in an automobile with his brother, John Santoro, executive head of the firm.

### RACCA PLANS INSURANCE PROGRAM FOR MEMBERS

As an extension of its program of activity for members, Refrigeration and Air Conditioning Contractors Association is considering a program of group accident and sickness disability insurance, RACCA headquarters announces.

A recent poll of RACCA members indicated a widespread approval of such a program, according to Nathan Edelstein, executive secretary.

As explained by Edelstein in his letter to RACCA members, the proposed plan covers pre-existing causes of disability; it cannot be cancelled for an individual unless the entire plan is cancelled; it does not require house confinement in order to collect full benefits, and the coverage is world-wide, non prorating and free from exclusions. Most of the advantages of the proposed plan, according to Edelstein, are not available to the individual insurance buyer.

Low cost, Edelstein says, is another major advantage of the plan. Due to the wholesale buying power of RACCA and the economies inherent in group administration, the price of the insurance contemplated represents a saving of 30% to 50% as compared to the cost of insurance individually purchased.

### SUGGESTS WAYS TO AID OPERATION OF EQUIPMENT

Three suggestions to manufacturers of refrigeration and air conditioning equipment regarding factory inspection and field servicing policies were made by Ralph E. Manns, California contractor, in a talk at the recent convention of the Refrigeration and Air Conditioning Contractors Association in Chicago.

Manns suggested that manufacturers:

1. Establish an inspection department independent of the sales and production departments to see that equipment shipped is free of defects and properly assembled.
2. Maintain a trained service representative in each area who is available to all dealers, distributors and contractors to promptly inspect and determine responsibility for alleged defects. This representative should have full authority to authorize not only replacement of defective parts but also the labor costs of such re-

placements where the defect is clearly the factory responsibility.

On borderline cases, or where the customer or contractor is clearly at fault, prompt inspection and discussion by such a representative will minimize friction and misunderstandings, Manns declared.

3. Maintain adequate stocks of repair parts and replacements in local areas.

"Observations of the contractor in the field should be passed on to the maker as quickly and in as much detail as possible," Manns asserted. "Only by getting adequate field information can a legitimate, manufacturer make changes in his equipment and operations to fit our needs."

### DON KISSELL HEADS COAST CONTRACTORS

Don L. Kissell, of the D. L. Kissell Refrigeration Co., was elected president of the Refrigeration and Air Conditioning Contractors Association of Southern California at the recent meeting of the organization's board of directors.

William J. Robinson, of Hugh Robinson & Sons, was elected vice president; Robert Savage, of Water Chemists, Inc., was named secretary-treasurer. Henry B. Ely continues as executive secretary of the association.

Newly elected directors include:

Hays Corey, of Baker Engineering Corp.; Kissell, Savage, and Charles Walling, of National Refrigeration Co.

These members will serve as directors for the coming year along with Don Beck, of W. S. Kilpatrick & Co.; Ralph Manns, of Ralph E. Manns Co.; Dale Missimer, of Pacific Refrigeration Co.; R. W. Noll, of Commercial Refrigeration Co.; and W. J. Robinson, of Hugh Robinson & Sons.

New members of the association include: Market Refrigeration, Inc.; Bechtel Refrigeration Service; Mundy Refrigeration Service; Fisher Bros. Refrigeration; Vernon Refrigeration Co.; and the H. H. Newton Co. The application of Key Refrigeration Co. will be acted upon at the next directors' meeting.

Baker Refrigeration Corp. withdrew from the association, having gone out of the contracting business, this work being carried on by Baker Engineering Corp., an association member.



# NOW You Can Simplify Your Inventory!

with

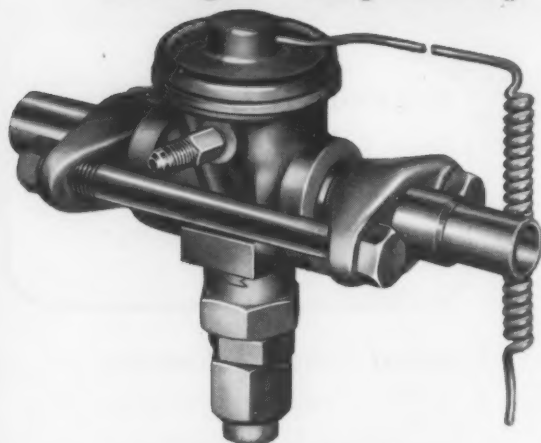
↘ *Easier to Stock*

↘ *Easier to Sell*

↘ *Easier to Install*

## DETROIT

### Large Capacity Expansion Valves



#### Check These Features

★ External Equalizer Connection ★ Single Diaphragm ★ Gas Charged for Air Cond. and Commercial Use ★ Liquid "Z" Charge for low temp. use (786 & 787) ★ In-Line Connections ★ Only one set of Connections—Inlet  $\frac{3}{8}$ " O.D. Tubing—Outlet  $\frac{1}{4}$ " O.D. Tubing ★ Capacities 2 to 25 tons Freon-12 ★ Capacity Easily Changed on the Job ★ Easily Installed

Yes, now you can simplify costly, unnecessary time consuming inventory problems—streamline your stock and your sales with **DETROIT** 786, 787 and 788 large capacity thermostatic expansion valves. That's because the 786, 787 and 788, with capacities from 2 to 25 tons Freon-12, are designed for quick, convenient handling. All you stock are the basic valves themselves. The need for numerous special connection assemblies is completely eliminated because the valve inlet and outlet connections can be readily altered to larger or smaller sizes by the use of standard reducing couplings. What's more, these valves, all equipped with external equalizer connections, are designed with in-line connections for easy installation and capacities may be quickly and conveniently changed on the job. But why not find out for yourself—look them over and you'll agree—for ease of ordering, stocking, selling and installing, smooth performing **DETROIT** Large Capacity Expansion Valves are truly standouts from every standpoint!

For complete information, write today for Catalog No. 200-C.

# DETROIT

LUBRICATOR COMPANY

5900 TRUMBULL AVE., DETROIT 8, MICHIGAN

Division of AMERICAN RADIATOR & Standard Sanitary Corporation

RAILWAY & ENGINEERING SPECIALTIES, LTD.:

Canadian Representatives in Montreal, Toronto, Winnipeg.

EXPORT DEPT.—Box 219 Ridgely, New Jersey



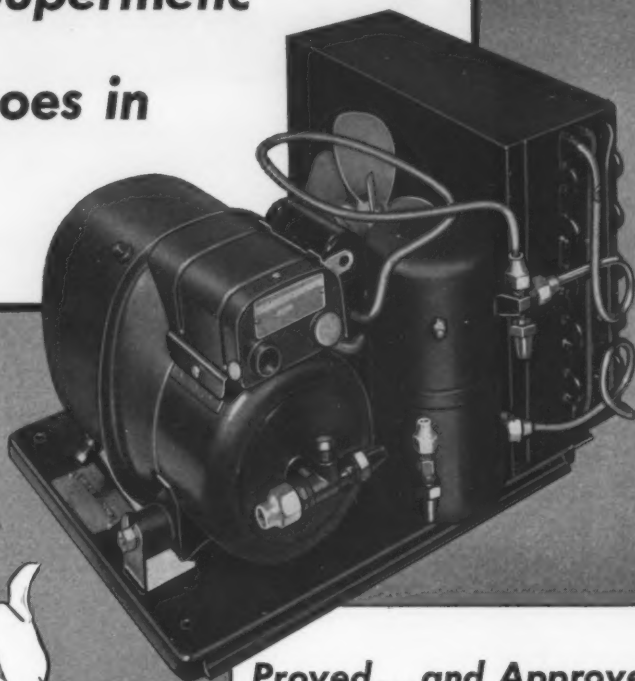
DETROIT HEATING AND REFRIGERATION CONTROLS • ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER EQUIPMENT • DETROIT EXPANSION VALVES AND REFRIGERATION ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS

*Serving home and industry*

AMERICAN STANDARD • AMERICAN BLOWER • ACME CABINETS • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

for more information Circle No. 57 on Reader Service Card  
and AIR CONDITIONING • FEBRUARY, 1952

**"A Servel Supermetic  
really goes in  
to stay!"**



**Proved...and Approved  
BY EVERY TYPE OF  
COMMERCIAL REFRIGERATION  
USER . . . EVERYWHERE!**

Small wonder Servel gets the nod of approval from keenest judges of condensing unit quality. They will tell you that for easier installation — and for longer care-free service — the simple, compact Supermetic gets top rating. They will tell you that its smooth, all-but-noiseless operation is for "keeps." They will also tell you that years of steady service rest lightly on the Supermetic. In fact, thousands can point to Servel installations made many years ago . . . and still going strong. Any way you weigh condensing unit value, you'll find Servel scores higher on every count. And there's a model for every commercial refrigeration and air conditioning use —  $\frac{1}{8}$  to 5 HP.

**WRITE FOR COMPLETE SPECIFICATIONS  
AND CAPACITY DATA TO THE ADDRESS BELOW**

### **Typical Trouble-Savers:**

- no belts or pulleys to wear out or reduce power
- force-feed lubrication protects every vital point — no manual oiling
- oil-free refrigerant rules out damage by oil "slugging"
- cushioned quiet—special mountings prevent vibration
- ruggedly built — rust-resistant bronze finish

**... and there's always  
Servel's Low-Cost  
5-Year Warranty**

... available on steel-case models up to 1 HP. Larger models warranted 1 year.



**SERVEL, Inc., Electric Refrigeration Division, EVANSVILLE 20, INDIANA**

## ABOUT PEOPLE . . .

Continued from page 40

the largest distributors in the South. For many years he worked in dealer development and sales supervision, covering the largest area of the Trant territory, which included the Potomac Edison System in the four states in which they operate. Kight is not a stranger to Victor as he worked very closely with them in the early days of milk cooler development, and retained a close and personal relationship with Victor during his many years in the refrigeration industry.

**Norman W. F. Klein** has been named to head a completely reorganized export division for Super-Cold Corp., in a move to intensify the company's efforts in the export field, according to an announcement by F. R. Waingrow, executive vice president. Super-Cold has been in the export market for over 20 years with a complete line of more than 40 items of refrigeration equipment. Klein will be responsible for the extension and strengthening of foreign importer-distributor-dealer contacts and will supervise all export advertising and merchandising efforts. A native of Holland, Klein has had many years of experience in the import-export business, having at one time operated a firm of his own in this field.



New industrial managers have been named for the Denver, Tulsa and Kansas City branch offices of Minneapolis-Honeywell Regulator Co., it has been announced by W. H. Steinkamp, field sales manager for Honeywell's Brown Instruments division. **W. J. Blackburn** has been made industrial manager of the Denver office, succeeding Donald W. Larcen, who was recalled to active military duty. **Donald D. Baker** has been made industrial manager of the Kansas City office, succeeding Blackburn. Baker, formerly at Wichita, has been re-

Circle No. 59 on Reader Service Card for more information

# AUTO-LITE

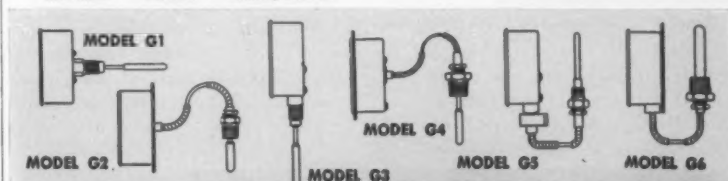
## TEMPERATURE INDICATORS

*For your specific needs!*

- ★ Precision-built indicators provide accurate temperature readings.
- ★ Low-cost protection . . . due to large, specialized production.
- ★ Wide selection of dial ranges to meet specific requirements.
- ★ 6 stock types available as shown.

**THE ELECTRIC AUTO-LITE COMPANY**  
INSTRUMENT AND GAUGE DIVISION Dept. P-6  
TOLEDO 1, OHIO  
NEW YORK • CHICAGO • SARNIA, ONTARIO

**MODEL "G"**  
Select the type that is best for your purpose. 3 1/2" dial; evenly calibrated scales. From \$18 up.



## PARAGON

### DEFROSTING TIME SWITCHES

300 M  
SERIES

From  
**\$19.50** List

### For Commercial Defrosting

• Electric Heat • Hot Gas  
or Compressor Shut-Down

#### For

UNIT COOLERS • WALK-IN BOXES  
FROZEN-FOOD DISPLAY CABINETS  
LOCKER PLANTS • REACH-IN CABINETS  
• FUR STORAGE VAULTS •

Paragon 300M series offers accurate, easy-to-set synchronous-motored time switches for up to 8 defrost periods per day, of two hours or less . . . one of a wide range of dependable Paragon Time Controls.

AMERICA'S LARGEST EXCLUSIVE  
MANUFACTURER OF TIME CONTROLS  
FOR ALL USES

MAKERS OF THE FAMOUS

**de-frost-it**

FOR DOMESTIC REFRIGERATORS - ONLY **\$9.95**

**Paragon ELECTRIC COMPANY**

1688 TWELFTH STREET • TWO RIVERS, WIS.



Circle No. 60 on Reader Service Card

## Buy Peerless FOR PERFORMANCE

Faster-  
Freeze  
Finned

Cube Makers



The PEERLESS Finned Faster-Freeze Cube Maker provides both refrigeration and rapid ice-cube manufacture from a single, balance, compact unit. Its fin coils are standard PEERLESS coils with nonsoldered return bends . . . the ice-cube maker is standard PEERLESS all-aluminum construction. Easy installation and trouble-free operation are outstanding features; these Finned Cube Makers are available with either copper or aluminum tubing, permitting choice of refrigerants. Plain type cube makers also available. Sizes, capacities for all requirements. Designed to meet government specifications. Write for details.

**Peerless of America, Inc.**

1501 No. Magnolia Avenue  
Chicago 22, Illinois, U.S.A.

Circle No. 61 on Reader Service Card

placed there by **Bernard J. Alberts** from New Orleans. **Jack F. Smith** has been appointed industrial manager at Tulsa, from which city he will coordinate the company's industrial sales activities in the Tulsa, Oklahoma City and Amarillo areas under the direction of Reginald Walker, branch manager. **Pilgrim McRaven** will handle industrial interests in Oklahoma City.

**Edward F. Ford**, who has been active in the heating equipment industry for the past sixteen years, has joined the sales division of Bell & Gossett Co. Most recently, Ford was associated with the C. A. Dunham Co. of Chicago.

Jamison Cold Storage Door Co. announces the appointment of **Louis C. Bewig**, 3456 South Grand Blvd., St. Louis 18, Mo., to handle their line of cold storage, refrigerator, and insulated doors in the territory of eastern Missouri and southern Illinois.

**H. H. Paltridge** has been appointed vice president in charge of sales and assistant to the president of Reco Products Division of Refrigeration Engineering Corp. Since 1948 Paltridge has been New York District manager for Baker Refrigeration Corp., and will continue in this capacity with the assistance of an increased staff. He will be in charge of the New York headquarters of Reco Products Division and Reco International Division, at 150 Nassau St. Paltridge has been in the refrigeration and air conditioning field since 1931 except for three years' war service.

**William J. Scarlett** has been named food industries manager for Minneapolis-Honeywell Regulator Co., and will be responsible for promotion and sales nationally of the

company's products for the food industries. Scarlett's 20 years of experience includes service with General Electric, Frigidaire, and Carrier Corp. For the past 13 years he has been with Wallace & Tiernan Co.

**Robert H. Pratt** has been appointed product manager for oil and electric appliances for the Controls division of Perfex Corp., and **Paul F. Neess**, sales engineering department manager for the division, has been appointed product manager for gas controls. The appointments were announced by V. P. Black, vice president of the division.

Bush Mfg. Co., Hartford, Conn., has announced the appointment of sales engineers in three additional territories. **E. R. Ramsey** has been named to cover the western New York territory, with headquarters in Rochester; **D. L. Adkins**, Washington, D. C., will cover District of Columbia, Maryland and Virginia; and **A.**



## PERFECTION IN DISPLAY "DISPLAY ALL"

"DISPLAY ALL" glass refrigerator doors are used in thousands of modern markets and wherever there is refrigerated display. They are designed to sell merchandise, enhance appearance and give long lasting, trouble free service.

- Unobstructed, brilliant glass
- Mirror polished extruded aluminum
- Perfection in storage and display
- Quickly installed in any combinations

LET US SHOW YOU HOW "DISPLAY ALL" DOORS WILL MEAN SALES AND PROFIT TO YOU... WRITE FOR OUR BROCHURE.

**AMERICAN GLASS REFRIGERATOR DOOR CO.**  
1028 NORTH LA BREA AVE. • LOS ANGELES 38, CALIF.

Circle No. 33 on Reader Service Card for more information

**REVOLUTIONARY THERMOMETER**  
Solves All Equipment Installation Problems

**YOUR COSTS ARE LESS . . .** Less time on the job for engineers with a WEKSLER ADJUST-ANGLE INDUSTRIAL THERMOMETER because—  
**NO TIME IS WASTED . . .** Adjusts to ANY angle  
**GREATER VISIBILITY . . .** Positions to any angle through 180° arc  
**REDUCES STOCK REQUIREMENTS . . .** Will NOT break under normal shock or vibration  
Today . . . find out how WEKSLER can make things smoother in YOUR plant! Ask your jobber for IMPORTANT FREE BROCHURE AASO, or write to:

**WEKSLER**  
THERMOMETER CORP.  
52-56 W. Houston St., N.Y. 12, N.Y.

For Glass Engraved on Stem Thermometers and Hydrometers, Send for Catalog 225.  
For Dial Indicating and Recording Pressure Gauges, Send for Catalog 325.  
For Dial Indicating and Recording Thermometers, Send for Catalog 325.

Circle No. 27 on Reader Service Card for more information



**A. Lincoln**, formerly with Johnston Refrigeration Co., Detroit, will represent Bush as sales engineer in Michigan and upper Ohio.

Frigidaire Sales Corp. of General Motors has announced two new appointments and a retirement in the field sales organization. **Paul V. Sprout**, branch manager at Albany, N.Y., will be transferred to the Cleve-



P. V. Sprout



P. L. Preston

land branch as assistant branch manager. He will replace **H. H. Kennedy** as branch manager when the latter retires April 1. **Paul L. Preston**, who is currently general sales manager at Albany, will succeed Sprout as branch manager at that office. Sprout has been with the company for 24 years, serving in various capacities including assistant factory service manager, factory service manager and has been Albany branch manager since 1947. Preston joined the field organization in 1930 as a sales representative in the Albany branch. He was promoted to general sales manager of the branch in 1947.

**John H. Bartol**, director of the air recovery division of the W. B. Connor Engineering Corp., has been elected a vice president.

Two promotions in Servel's electric refrigeration division have been announced by **A. H. Counts**, superintendent. **Richard Gerard, Jr.**, who has been supervisor of electric refrigeration material control and stores, was promoted to supervisor of production control for the division. He has been at Servel since 1941. **Edmund Tenbarger**, formerly a material control clerk, was made supervisor of electric refrigeration planning and scheduling. He joined Servel in 1942.

## Presenting THE NEW P. H. "SHOWMAN" LINE

DOUBLE DUTY "GRAD-U-MATIC" DISPLAY CASES



10 FT. MODEL — REMOTE

### Designed to INCREASE SALES THRU BETTER VISION — DISPLAY AND REFRIGERATION

Before you buy any display case see the new Puffer-Hubbard "Showman" Case . . . finished in lifetime porcelain and stainless steel . . . streamlined to the nth degree to focus your customers' attention on the products you have to sell. It's the new case with maximum interior display areas! With full vision, Triple Thermopane (non-fog) front glass! With dual fluorescent (no-shadow) lighting!

And the "Showman" Case will keep your meats and dairy products in the most appealing saleable condition. It's equipped with "Grad-U-Matic" Air Conditioning! The exclusive Puffer-Hubbard feature which practically eliminates shrinkage, spoilage and discoloration . . . through effective control of Temperature, Humidity and Air Flow! Available in 6', 8' and 10' models.



REACH-IN PASS-THRU DAIRY-DELICA SLO-DOUGH FLORIST DRY BEVERAGE  
CABINETS CABINETS TESSEN CASES RETARDERS CABINETS COOLERS

**PUFFER-HUBBARD MANUFACTURING CO.**  
GRAND HAVEN MICHIGAN

Now Priced to Sell  
as low as \$499<sup>00</sup>

**Lipman**  
"ICE BOY"

#### New JUNIOR MODEL

A "Junior Ice Boy" that's only 19" high and 34" long . . . fits into any small space . . . but it's big in capacity! Freezes 100 lbs. of tips per day . . . twenty-four 3/4 ounce tips every 15 minutes! Operating cost as little as 10¢ per 100 lbs. Write for details!

Also the standard size "Ice Boy" that makes up to 2,000 large tips per day. Ideal for hotels, clubs, restaurants, etc. Literature sent on request.



**YATES-AMERICAN**, Beloit, Wisconsin  
I am interested in making money selling Lipman Ice Tip Machines. Send details.

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_



**Yates-American**

BELOIT, WISCONSIN

Circle No. 63 on Reader Service Card for more information

# BUSINESS GOES UP AS TEMPERATURE GOES DOWN...



## when you handle the New and Improved TEXACO CAPELLA OIL (WAXFREE)

Not only throughout the normal refrigerating range but *even down to minus 100° F.* the new and improved *Texaco Capella Oil (Waxfree)* assures the best in compressor performance. With an oil like this, business is bound to go up for distributors, dealers and service men alike.

*Texaco Capella Oil (Waxfree)* has outstandingly low haze and floc temperatures. Tests have proved that *Texaco Capella Oil (Waxfree)* is unbeatable for freedom from wax precipitation, low pour test, high resistance to oxidation,

freedom from foaming and moisture, and non-reaction with refrigerants.

There is a complete line of *Texaco Capella Oils (Waxfree)* to enable you to get more efficient operation from every compressor, regardless of type, size or age. They come to you in refinery-sealed 55-gallon drums, and 5-gallon, 1-gallon and 1-quart containers for make-up.

"Up" your compressor oil business—and your profits—with *Texaco Capella Oil (Waxfree)*. The Texas Company, 135 East 42nd Street, New York 17, N. Y.

### TEXACO Capella Oils (Waxfree)

FOR ALL REFRIGERATING AND AIR CONDITIONING EQUIPMENT

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon

Circle No. 64 on Reader Service Card for more information

FEBRUARY, 1952 • COMMERCIAL REFRIGERATION



# THE PRACTICAL REFRIGERATION APPLICATIONS MANUAL

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. The most interesting ones will be published in these columns. All problems should be clearly and completely stated and addressed to: **COMMERCIAL REFRIGERATION**, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

## PROBLEM

"HERE is a diagram and data on a cold storage room that a local wholesale meat company is proposing to build. I would appreciate your advice as to the needed equipment and whether the indicated insulation will be sufficient.

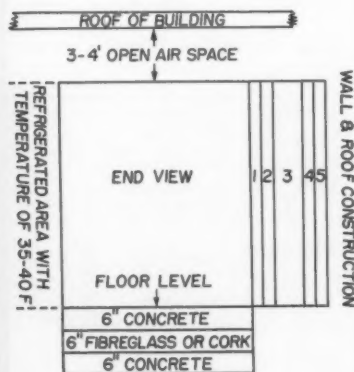
"The product to be stored will be frozen meats, with a minimum daily load estimated at 500 to 1000 pounds. Most of the meat will already be

maintained at 35 to 50 F. Outside temperatures, however, will range from 80 to 105 F for six to eight months of the year. Temperature inside the room to be constructed should be held at -10 to -20 F.

"Heat load will include three 75-watt bulbs and evaporative motor heat. Entry into the room will be provided through one standard size door.

"We should like to know what you would recommend in the way of evaporator size and location, condensing unit size (must be air cooled), refrigerant and motor controls, and type of refrigerant (we prefer F-12 if practicable).

"Details of room construction and insulation are indicated on the accompanying sketch."



## SOLUTION

WE HAVE carefully checked over your sketch and the information you have given us relative to the low temperature cooler you plan to build.

We are assuming that this cooler will be 20 feet long by 8 feet wide by 10 feet high (although this dimension is not given in your information).

We also are assuming that the one 20-foot side which will adjoin the present normal-temperature cooler will be erected with at least 4 inches of insulation and that the other side wall, the two ends, and the floor will be insulated as you have indicated in your diagram.

We note that no provision has been made for insulating the ceiling, but that an open air space of 3 or 4 feet will exist between the ceiling and the low temperature cooler and the roof of the building. We recommend

that the ceiling be insulated with the same amount of insulation used in the walls.

As some of the specifications are missing, we have estimated the load requirements with construction as outlined above and with a daily product load of from 500 to 1000 pounds of pre-frozen meat. As you do not state the amount of freezing to be done from time to time in this cooler we cannot establish a figure for that load.

In order to provide satisfactory operation, we have estimated the load under maximum outside temperature conditions of 105 F. With inside storage temperatures of -10 F, this means a temperature differential of 115 degrees. With this specifications the hourly load would approximate 12,000 Btu on a maximum running time of 18 hours out of 24 hours, without any freezing load.

With a cooler temperature of -10 F and suction gas temperature of -20 F, operating on a 10-degree t.d., two 1½-hp air cooled condensing units should be used with two blower type lowside rated at 600 Btu per 1 degree t.d., or with cold plates having a combined capacity of 12,000 Btu per hour on a 10-degree t.d. Half of these plates should be handled by each condensing unit.

If any substantial amount of freezing is to be done within the cooler, it would be advisable to use two 2-hp air cooled condensing units with a 50% increase in lowside capacity.

We have based our equipment selection on 1½-hp air cooled condensing units, each providing approximately 6600 Btu at -20 F suction gas temperature using F-12 refrigerant, or 2-hp air cooled condensing units, each with approximately 8600 Btu capacity under these same conditions.

Equipment operation can be controlled with the low pressure control which is standard equipment on the condensing units, or with thermostatic controls if preferred. Each condensing unit should be individually controlled.

The air cooled condensing units should be located where free circulation of air can be obtained to hold down head pressures as much as possible. Extremely high head pressures will lower the condensing unit capacity somewhat during the extreme hot weather.

1. STUCCO 1" TO 1¼" THICK
2. WOOD 1" "
3. FIBREGLASS 8" "
4. WOOD 1" "
5. STUCCO 1" TO 1¼" "

frozen when placed in the room, but in the future it might be desirable to freeze some meat in it.

"The room which will measure 20 feet long by 6 or 8 feet wide, will be entirely inside another building, with one long wall adjoining a refrigerated area in which temperature is

## RUSSELL SALES TO COVER WEST COAST FOR BAC

Baltimore Aircoil Co., Inc., has announced the appointment of the Russell Sales Co., 4216 Pacific Way, Los Angeles 23, as exclusive representative for BAC equipment in the states of California, Nevada, Oregon, Washington, Idaho, and Vancouver, B. C., Canada.

ably lower cost. Two 20-ton packaged units serve the factory; the original estimate for the factory, using a conventional remote system, was considerably higher in cost, because of the duct system that would have been required.

In the second place, the use of packaged equipment made it possible to complete the job in less than three weeks. The contract was signed on August 3, and the units were completely installed and running on August 22. During the same time, a new 3-inch water main was brought in from the street.

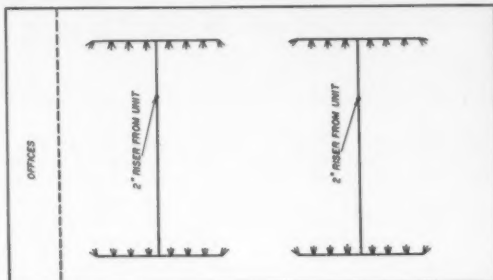
The two 20-ton conditioners in the factory area are designed to maintain 78 F dry bulb and 50% relative humidity. One of the units is equipped with a fresh air duct, to compensate for air removed by an exhaust fan.

The original estimate for this installation came to nearly 50 tons, but by utilizing condenser waste water by spraying it on the flat roof of the building, Bell engineers reduced the load to 40 tons. The condensate drain water is also pumped to the roof by means of small pumps mounted on each 20-ton unit.

The roof spray system also provided a means for disposing of condenser waste water in addition to reducing the air conditioning load. It was, besides, the only prac-

tical way in which this waste water could be disposed of. No changes were permissible in the plant's floor level, because all open areas had to be kept flat so that trucks loaded with raw stock and partially or completely finished materials could be moved from one section of the plant to another.

How have factory workers reacted to the new comfort cooling system? Herb Anderson, plant manager,



**DIAGRAM** of roof sprinkler system for Anderson Spring Co. installation.

reports a notable difference in the employees' attitude, although the system was operated only about a month last year. Fatigue point, he reports, seemed to occur later in the day than before the system was installed. Workers were happier, and production high.

## LOOK to LARKIN



**for  
Quality**

HIGH  
AND  
LOW BOY  
MODELS

**LARKIN  
WALL  
HUMI-TEMP**

Quality speaks a language everybody understands. Wholesalers, dealers, and users alike know that the name *Larkin* means quality—of workmanship, materials, and performance.

Manufacturers of the original Cross-Fin Coil — Humi-Temp Units — Evaporative and Air Cooled Condensers — Air Conditioning Units and Coils — Direct Expansion Water Coolers — Steel Vacuum Plate Coils — Heat Exchangers.

WATCHDOG OF THE NATION'S FOOD SUPPLY

**LARKIN COILS**

119 MEMORIAL DR., S.E. • ATLANTA, GA.

Circle No. 65 on Reader Service Card

## MADDEN DUO-TEST CHARGING LINES



Get ALL  
these top  
quality features  
at new low prices!

**\$2.30**  
FOR  
36" HOSE  
"COMPLETE"

1. Forged brass Quick Coupler Nut with finger grip design and long ferrule and barb for better seal.
2. Easily removable Gasket.
3. Individually packaged in dust-proof plastic bag.
4. Neoprene exterior—high tensile reinforcing braid—special inner core impervious to common refrigerants. Operating pressure, 500 lbs. average. Bursting pressure, 2500 lbs.
5. A Hose in the exact length you require. (24"—30" and 36" stock sizes with any special length available on request).

**MADDEN BRASS PRODUCTS CO.**  
1111 N. FRANKLIN ST. CHICAGO 10, ILL.

Circle No. 66 on Reader Service Card



## 2 PRACTICAL PRODUCTS

**for Service Engineers**



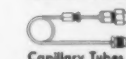
**FLO**—the new chemical liquid dehydrant in the self-measuring plastic bottle. Renders moisture inert in the refrigeration system and inhibits oxidation, corrosion and rust formation. Completely stable; no change after absorbing moisture; no solids; does not powder. "You get it dry. Keep it dry—chemically."

**VISOLEAK**—the original leak detector for use in all refrigeration and air conditioning systems. An absolutely inert red dye containing no solids; remains permanently in suspension. Circulates freely throughout the system and instantly shows up leaking joints with a tell-tale red stain. Non-toxic, non-poisonous, non-corrosive.

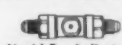


Send for Bulletin WH-51

**Ask your Wholesaler for  
Allin Practical Products**



Capillary Tubes



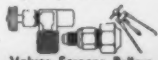
Liquid Eye Indicators



FLO



Visoleak



Valves, Screens, Pullers

**ALLIN MANUFACTURING COMPANY**

1153 West Grand Ave., Chicago 22, ILL.

Circle No. 67 on Reader Service Card



## OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$4.00 minimum, limit 25 words. For all other classifications, \$4.50 minimum for 25 words or under, each additional word 15c; boldface type or all capitals, \$7.50 minimum for 25 words or under, each additional word 20c. Box addresses count as five words, other addresses by actual word count. All advertisements in this section are payable in advance.

### POSITIONS AVAILABLE

Experienced Commercial Refrigeration Salesman Wanted for Southern California-Arizona territory. Pacific Coast Warehouse stock available. Right man can net \$8,000 to \$10,000 yearly. Must qualify for bond at my expense. Contact Chas. R. Rogers, Western Zone Sales Mgr., Sherer-Gillett Co., 151 Second Ave., San Mateo, California.

**SALESMAN**—Manufacturer has opening for an experienced salesman to travel eastern territory selling dealers, distributors, and manufacturers of beer dispensing equipment. Must be willing to travel. Write Box 2152, Commercial Refrigeration and Air Conditioning giving information of past experience and recent earnings.

### BUSINESS OPPORTUNITIES

Refrigeration Sales-Service business. Selling Re; Injury. Excellent Franchises, and following. Inventory. Price \$8000. Great Army-Health Center 100,000. A Bargain. Box 728, Albuquerque, N.M.

### FOR SALE

**X13 TO REPLACE CARBON TET FOR USE IN THE SHOP. SEE YOUR LOCAL JOBBER.**

### TRAINING AVAILABLE

Course on sealed unit rebuilding trade secrets disclosing exclusive methods for all operations. \$12.50 or write for details. H. Custer, Box 98, Center Line, Michigan.

### PENNSALT TO INCREASE AMMONIA PRODUCTION

The Pennsylvania Salt Mfg. Co. has announced it will increase production capacity for synthetic anhydrous ammonia at its Wyandotte works by approximately 110%.

The new facilities will be added to Pennsalt's present ammonia plant at an estimated cost of \$2,200,000. Construction will begin early in 1952 and is scheduled for completion early in 1953.

### HANDLE SUNROC

Appointment of two new sales agencies has been announced by Sunroc Co., water cooler manufacturer. Tate Engineering & Supply Co., Baltimore, headed by Robert L. Tate, has been named distributor for Carol, Howard, Ann Arundel, Baltimore and Harford counties, Maryland, and Sunroc Sales Agency, Richmond, Va., managed by Andrew Blunt, will handle sales, rental and service in that area.

"Prove the Need  
and the Sale  
Takes Care of  
Itself!"

FOR ACCURATE INFORMATION ON  
RELATIVE HUMIDITY and  
TEMPERATURE... RELY ON

**Bendix-  
Friez**

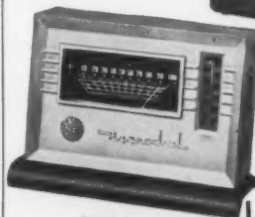
When your customers see the facts and figures, your selling job virtually disappears. With precision-made, dependable Bendix-Friez instruments you can demonstrate with on-the-spot readings or recordings exactly how much and where your customers need temperature and humidity control for maximum comfort in the home, maximum efficiency in industrial operations. Bendix-Friez instruments are built to U. S. Weather Bureau standards by the world's oldest and largest manufacturer of fine meteorological equipment. Write for complete information.

#### BENDIX-FRIEZ

#### MODEL 160

Portable Humidity and  
Temperature Recorder

3" x 5" charts, 10 or 30  
hour records. Modern design... handy for small  
space and difficult locations... built to meet  
unusual conditions.



BENDIX-FRIEZ

#### Precision Humidity and Temperature Indicator

Hand-operated and calibrated to professional standards of accuracy by the maker of the world's finest weather instruments. Handsome, modern case—4" high, 6" wide, 2 1/2" deep—desk or wall mounting.

#### FRIEZ INSTRUMENT DIVISION of

1310 Taylor Avenue  
Baltimore 4, Maryland



Expert Sales: Bendix International Division  
72 Fifth Avenue, New York 11, N.Y.

Circle No. 69 on Reader Service Card

## NO MORE FREEZE-UPS

of expansion valves or capillary tubes!

**ICE-X** works like magic  
SERVICE MEN SAY: "ICE-X IS GREAT!"

When ice forms in expansion valves or capillary tubes, ICE-X is a sure remedy... ICE-X is non-corrosive—harmless to parts. An ice-eliminator that can't be beat for Freon, Carrene, or Methyl Chloride systems... Order from your jobber. If no jobber, order direct.

Service doesn't falter  
when it comes from Harry Alter

Jobbers: Ask for special offer!

**The HARRY ALTER CO.**

Exclusive  
ICE-X  
Distributor

1728 S. Michigan Ave. Chicago 16, Illinois

Circle No. 68 on Reader Service Card for more information  
and AIR CONDITIONING • FEBRUARY, 1952



*There's always one that's better...  
and in controls it's Ranco!*

One just can't be blind to the fact that Ranco controls are the most widely used in the refrigeration industry.

And the reason is simple: dependable, accurate Ranco controls are available for more than 4,000 replacement installations—for domestic refrigerators, milk coolers, water coolers and commercial units of every type. They're the first choice of expert refrigeration men everywhere.

**Ranco Inc.**

COLUMBUS 1, OHIO



WORLD'S LARGEST MANUFACTURERS OF REFRIGERATION CONTROLS

Circle No. 70 on Reader Service Card for more information

FEBRUARY, 1952 • COMMERCIAL REFRIGERATION

## HERE'S HOW!

Edited by  
Warren W. Farr

### What's Behind Faulty Refrigerator Door Latches?

Poor operation of refrigerator door latches can be due to several causes. When you encounter a condition of this kind, probably the first thing to do would be to check the strike, to make sure it is lined up properly with the bolt of the lock. It may be necessary to move the strike in or out to obtain both good locking action as well as the proper seal of the door.

If the strike is in too far, it may be necessary to place shims behind it. Similarly, shims might have to be placed behind the bolt if it is too short. A bolt that is too long may be brought down to size by filing carefully.

### Creating Confidence: Answer Calls Promptly

When a service call comes in from one of your customers, answer it promptly. Give the customer an idea of the approximate time you'll be there to do the job, and keep to that time as closely as you can.

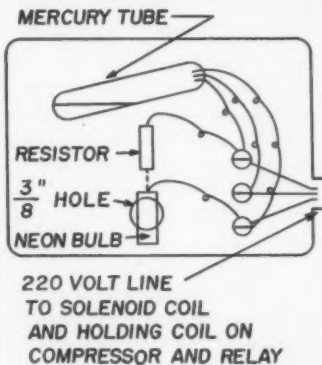
Failure to be prompt in answering service calls is one of the quickest ways to make customers lose confidence in you. When you make a promise, keep it.

Don't make a promise to be at a job at a certain time unless you're reasonably sure you can fulfill it. It's a mistake to make wild promises, in the thought that they'll keep the customer quiet—and satisfied. They'll do no such thing.

Next to downright incompetent work, broken promises are probably the quickest method you can use to shatter customer confidence.

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

*I do it  
this way...*



**WE HAVE** three hardening rooms for ice cream that have Minneapolis-Honeywell refrigeration temperature controllers on them. Many times it is necessary to know whether the mercury switch inside them is "on" or "off". As the controllers have a metal cover, the mercury tube cannot be seen without taking the cover off and perhaps leaving it off. This exposes the insides to water drips and splashes that are common in creameries.

We solved this by drilling a  $\frac{3}{8}$ " hole in the cover and attaching a tiny neon bulb and resistor inside the cover over the hole, wiring it to the control terminals.

Now we can tell at a glance, and from several feet away, whether the control is "on" or "off".

We took the neon bulb and resistors off of glow plates that are commonly used to mark the location of wall lighting switches. They will last for years and are inexpensive to obtain.

L. W. Williamson, Lawton, Okla.

### Mechanic or "Grease Monkey"—Which Name Describes You?

One of our readers, Henry B. Boyce of San Leandro, Calif., sends along a few paragraphs that we believe are well worth repeating. Mr. Boyce believes (and we agree with him) that the average refrigeration service engineer too often forgets that he is an engineer; that in too many cases he's content to correct the obvious trouble in the job he does, and never bothers to look for and correct the basic cause of the trouble.

Here's how Mr. Boyce puts it:

"Why not have corrective measures in your repair of refrigeration which can bring a good name to you as a mechanic? All too often a mechanic goes out on a call and thinks by replacing a defective part he has corrected the trouble and calls the job complete. Nine times out of ten the trouble is only temporarily corrected; the real cause of the breakdown is not corrected.

"Take expansion valves for example. A valve is replaced and the unit seems to be running okay; but why did the valve become inoperative? If it was freezing up, the use of driers would have cleared the valve; seat leaking—was it caused by low refrigerant causing hot gas to act as an abrasive? A pitted needle and seat—due to corrosive acids caused by moisture and oil although the moisture content was below freezing content? Wax in the orifice—due to wax separation of poor grade oil?

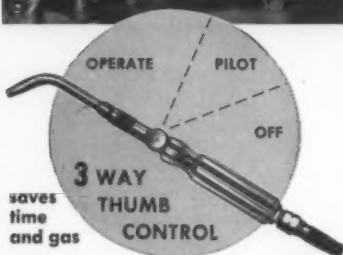
"Mostly what I'm trying to say is to find the real cause, and correct it, along with the immediate defect. Use some kind of a drier over and beyond what you think is dry enough. A system is never too dry. Good driers

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

## NEW! BETTER!

# Sod-R-Braze

### ACETYLENE-AIR TORCH with LEAK DETECTOR



With a few twists of the wrist, attach the sensitive NCG Leak Detector to the new Sod-R-Braze torch handle and you're ready to locate refrigerant leaks with pinpoint accuracy. With the same ease, unscrew the Detector, attach a tip and you've got a soldering and brazing torch that beats any you ever used. Outfit, including "NB" cylinder with 40 cu. ft. of high-heat acetylene gas, is easily portable, particularly so with NCG's new "Carryall"

*Sod-R-Braze is a trade mark*



# NCG®

NATIONAL CYLINDER GAS COMPANY  
840 N. Michigan Ave. • Chicago 11, Ill.

Circle No. 71 on Reader Service Card  
**82**

will aid in removing acids in the system. After every service call, purge properly to remove air or non-condensable gases.

"Raise the standard of work and we can expect better respect and wages from our patrons. Thoroughly clean each unit and the surrounding area after each job. This also helps to bring good will, besides proving cleanliness is refrigeration.

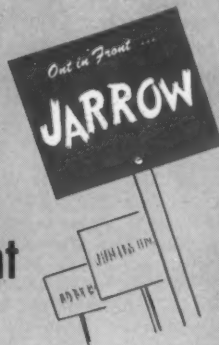
"A review of our service manuals and keeping up with new ideas makes our work a job to be proud of. Don't be a grease monkey."

*I do it  
this way...*

**I**F ONE has trouble putting belts on a Copeland or other closely guarded unit, I have found that by taping one, two or more belts to the groove or grooves of the compressor flywheel, the belts slip into place at once. Wheel can be hand turned.

*H. A. Maberry, Haverhill, Mass.*

out  
in  
front



**REFRIGERATOR**

**DOOR GASKETS**

**AND ACCESSORIES**

# JARROW PRODUCTS

430 NO. LA SALLE ST., CHICAGO 10

Circle No. 72 on Reader Service Card

## PORTABLE LECTURE BOARD SHOWS CONTROL SYSTEM

To aid their sales representatives in making forceful presentations before engineering and architectural societies, contractors associations, technical and trade school groups, Barber-Colman Co. has designed a portable lecture board for automatic electric controls. This board gives the illusion of an actual fan system and ducting. Realistic equipment photos, cut out and plastic coated, are moved about the board and are held in place by a "flock" backing which clings securely to the flannel-covered diagrammatic background.

## CORDLEY & HAYES GETS NAVY COOLER CONTRACT

Cordley & Hayes, major suppliers of electric water coolers (for shipboard use) to the U.S., Canadian and other allied navies during World War II, has recently been awarded a contract for 950 electric water coolers.

This contract is based on the new U. S. Navy Specifications MIL-R-15456A—Electric Water Coolers For Shipboard Use.

## ALTER TO DISTRIBUTE CENTURY MOTOR PARTS

The Harry Alter Co. announces its appointment as distributor of Century electric motor parts. Complete stocks of these parts are now carried at Alter's Chicago and New York warehouses. A complete listing of Century electric motor parts will be shown in the company's new catalog, which will be issued soon.

## L-O-F OPENS N. Y. SALES FOR FIBER GLASS

Establishment of a district sales office in New York by the Fiber Glass division of Libbey-Owens-Ford Glass Co. to be in charge of Arnold K. McClay, for the last three years in the LOF Glass sales organization in the same city, was announced by G. P. MacNichol, Jr., vice president.

McClay will have his offices in the General Electric building at 570 Lexington Ave. and will handle fiber glass sales in the New England states, New York, Pennsylvania, New Jersey, Delaware, and Maryland.



**KEEP REFRIGERANTS**



**WITH  
MUELLER BRASS CO.  
DELUXE DRIERS**

**Extra-capacity cone-screen filter  
unequalled for efficiency in the  
refrigeration industry.**

**FORGED BRASS ENDS**  
Heavy duty type with  
husky wrench flats.

**INLET CONTAINER  
SCREEN**  
Positive desiccant  
retainer without  
pressure drop.

**OUTLET RETAINER  
SCREEN**  
By itself, equal to  
the filter elements  
in most ordinary  
driers.

**WHITE WOOL DISC**  
Doubles filtering  
capacity.

**FILTER BED**  
Chemically cleaned  
wool mass traps fine  
metallic grit or other  
foreign particles.

**LOCKED-IN CONE  
OUTLET SCREEN**  
Extra capacity free  
flow strainer surface.

**DRYING AGENT**  
Installed under strict  
laboratory control  
with sealed charging  
equipment.

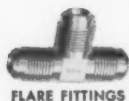
The millions of Mueller Brass Co. Deluxe Driers that are now in service provide the kind of proof you want—proof that no other drier can approach for all-around efficiency on-the-job, and for good reason. The Mueller Brass Co. Deluxe Drier is a typical example of the dependability and quality that Mueller laboratory and development engineers have made available in so much refrigeration equipment. The famous cone screen filter greatly increases the Deluxe Driers' working life. The filter strainer unit of the Deluxe Drier removes every minute particle of foreign matter from the line—keeping the refrigerant completely clean as well as dry.

**Order now from your refrigeration wholesaler.**

**Have these STREAMLINE products on hand  
for every job where you want dependable  
performance.**



**WROUGHT COPPER FITTINGS**



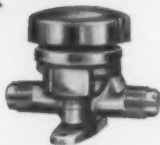
**FLARE FITTINGS**



**LIQUID INDICATORS**



**VALVES**



Write for catalog R-151  
describing complete line  
of STREAMLINE refriger-  
ation products.

STREAMLINE refrigeration  
products are individual  
and multiple packaged for  
complete protection.

**MUELLER BRASS CO. PORT HURON 12, MICHIGAN**

Circle No. 74 on Reader Service Card for more information



\*Write Ansul Chemical Company for your copy of Technical Bulletin titled "SLUDGES".

SEE PAGE 2

## INDEX TO ADVERTISERS

FEBRUARY, 1952

Acme Industries, Inc. ....	36
Alco Valve Co. ....	1
Allin Mfg. Co. ....	78
Harry Alter Co. ....	79
American Glass Refrigerator Door Co. ....	74
Ansul Chemical Co. ....	2, 84
A-P Controls Corp. ....	Cover 3
Bell & Gossett Co. ....	16
Black, Sivalls & Bryson, Inc. ....	44
Brunner Mfg. Co. ....	Cover 2
Bush Mfg. Co. ....	60
Carrier Corp. ....	9
Century Electric Co. ....	8
Chase Brass & Copper Co. ....	39
Chemical Solvent Co. ....	12
Commercial Credit Corp. ....	15
Davison Chemical Co. ....	56
Detroit Lubricator Co. ....	71
Eastern Industries, Inc. ....	52
Electric Auto-Lite Co. ....	73
Eston Chemicals, Inc. ....	57
Fedders-Quigan Corporation ....	41
Federal Refrigerator Mfg. Co. ....	58
Filtrine Mfg. Co. ....	54
Flexonics Corp. ....	64
Fogel Refrigerator Co. ....	48
Friez Instrument Div., Bendix Aviation Corp. ....	79
General Controls Co. ....	23
General Electric Co., Air Cond. Dept. ....	26, 27
Highside Chemicals Co. ....	65
S. A. Hirsh Mfg. Co. ....	47
Hudson Industries, Inc. ....	68
Ingersoll-Rand Co. ....	63
Jacks-Evans Mfg. Co. ....	5
Jamison Cold Storage Door Co. ....	52
Jarrow Products ....	82
Kelvinator Div., Nash-Kelvinator Corp. ....	59
Keratest Mfg. Co. ....	11
Kinney Mfg. Co. ....	6
Koch Refrigerators, Inc. ....	55
Kold-Hold Mfg. Co. ....	13
Kramer Trenton Co. ....	62
Larkin Coils ....	78
Libbey-Owens-Ford Glass Co. ....	34
Linde Air Products Co., Unit of Union Carbide and Carbon Corp. ....	10
Lynch Corp., Par Compressor Div. ....	7
McIntire Connector Co. ....	66
McQuay, Inc. ....	4
Madden Brass Products Co. ....	78
Marley Co., Inc. ....	49
Jas. P. Marsh Corp. ....	67
Mueller Brass Co. ....	83
Mystik Adhesive Products ....	22
National Cylinder Gas Co. ....	82
Northern Indiana Brass Co. ....	14
Paragon Electric Co. ....	73
Peerless of America, Inc. ....	73
Penn Controls, Inc. ....	25
J. F. Pritchard & Co. ....	47
Puffer-Hubbard Mfg. Co. ....	75
Ranco, Inc. ....	80
Reliance Electric & Engineering Co. ....	17
Remington Air Conditioning Div., Remington Corp. ....	18
Revere Copper & Brass, Inc. ....	33
Rotary Seal Co. ....	53
Sealed Unit Parts Co. ....	58
Servel, Inc. ....	72
Sporlan Valve Co. ....	21
Sweden Freezer Mfg. Co. ....	68
Tecumseh Products Co. ....	19
Texas Co. ....	76
Tubing Appliance Co. ....	84
Typhoon Air Conditioning Co., Inc. ....	46
Union Carbide and Carbon Corp., Linde Air Products Co. ....	10
Virginia Smelting Co. ....	51
Wagner Electric Corp. ....	20
Weksler Thermometer Co. ....	74
Yates-American ....	75

## TAC does what no other tool can do!



AT LAST! AN OPEN-END RATCHET WRENCH—the world's first true universal wrench. Never in the history of refrigeration and air conditioning servicing has any tool been developed to equal the ability of this patented design for connections on tubing, rods, piping, conduit, studs, etc. 64 socket sizes from  $\frac{3}{8}$ " to 4". TAC speeds all of your wrenching jobs.

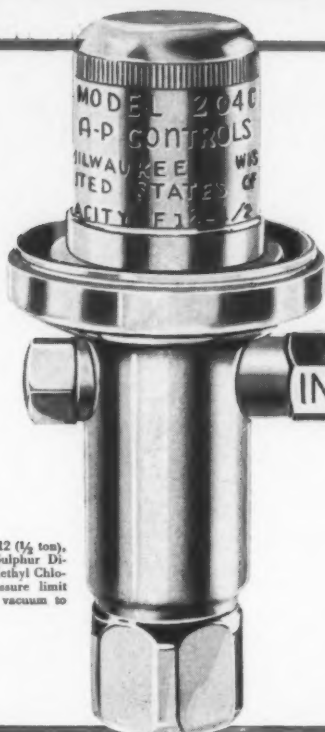
makers of  
advanced tools  
for industry



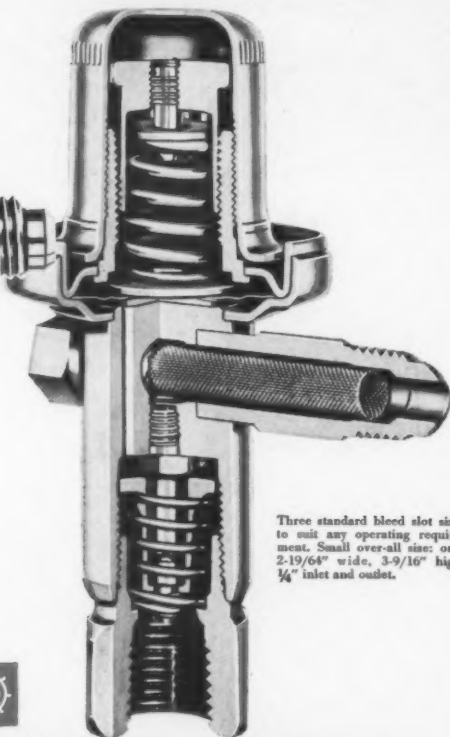
TAC is the registered trademark of

**TUBING APPLIANCE CO.**  
7112 South Victoria • 10321 Anza Ave. • Los Angeles, Calif.

## HERE'S AN IDEAL EXPANSION VALVE FOR HERMETICS!



Available for Freon 12 (1/4 ton), Freon 22 (3/4 ton), Sulphur Dioxide (3/4 ton) and Methyl Chloride (3/4 ton). Pressure limit adjustable from 15" vacuum to 45 lb. pressure.



Three standard bleed slot sizes to suit any operating requirement. Small over-all size: only 2-19/64" wide, 3-9/16" high. 1/4" inlet and outlet.

### Here's why it's better than a capillary tube

- 1 It's adjustable to prevent motor overload due to high suction pressure. You can't do this with a capillary!
- 2 The amount of refrigerant-system charge is not critical with this valve. It's extremely critical with a capillary!
- 3 Product cooling starts instantly on start of normal cycle. There's always a delay with a capillary.
- 4 Motor horsepower can be selected for maximum load under normal average ambient temperature. This means that a smaller motor can frequently be used. With a capillary, motor horsepower must be selected for extreme ambient temperatures!
- 5 This valve will open automatically to pass foreign matter which may collect at the orifice. In a capillary, foreign matter or moisture almost invariably ends in complete stoppage!



### IT'S THE NEW MODEL 204CH BLEED-TYPE AUTOMATIC EXPANSION VALVE!

It's the ideal valve for use on fractional tonnage applications. It gives you small size, instant response, motor overload protection . . . PLUS "bleed-over" or compressor unloading on the off-cycle.

Add to this the reduction of field-service problems, and the ease of replacement as compared to the practical impossibility of capillary replacement in the field . . . you'll see why this great new A-P valve saves time and money for everyone — manufacturer, distributor, service engineer and customer!



**DEPENDABLE Controls**

## A-P CONTROLS CORPORATION

(formerly Automatic Products Company)

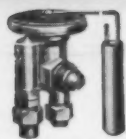
2486 N. 32nd Street • Milwaukee 45, Wisconsin

For Export: 13 E. 40th St., New York, N. Y. • In Canada: A-P Controls Corporation, Ltd., Cooksville, Ontario

Stocked and Sold By Good Refrigeration Wholesalers Everywhere • Recommended and Installed By Leading Refrigeration Service Engineers

Circle No. 76 on Reader Service Card for more information

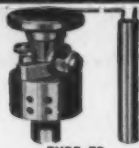
## THERMO EXPANSION VALVES



• TYPE TK  
"3 valves in 1"



TYPE TCL



TYPE TR  
Multi-Outlet



TYPE 402  
with pressure  
limiting feature



THERMO-LIMIT  
with pressure  
limiting feature

For automatic control of liquid refrigerant on all types of refrigeration and air conditioning systems. Capacities: from fractional tonnage to 50 tons "Freon-12", 100 tons Methyl Chloride. Low temperature valves for  $-40^{\circ}$  F. to  $-100^{\circ}$  F.

## SOLENOID VALVES



TYPE S1



TYPE M3



TYPE R2

## FLOAT VALVES AND SWITCHES



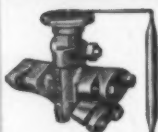
TYPE HK  
high pressure  
float valve  
Up to 5 tons "Freon-12", 10 tons Methyl Chloride and 20 tons Ammonia.



TYPE J5  
electric  
float  
switch  
For "Freon", Methyl Chloride, Ammonia and other non-corrosive liquids having a specific gravity of .6 or more. Up to 460 volts AC and 250 volts DC.

For all types of service. For liquid: "Freon"—up to 75 tons, Methyl Chloride—up to 150 tons. For suction: "Freon"—up to 8.8 tons, Methyl Chloride—up to 17 tons. For brine, water, gas, air and steam.

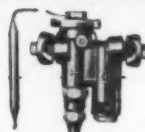
## AMMONIA CONTROLS



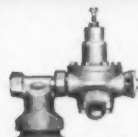
TYPE TG



TYPE M91F



TYPE UGZ



TYPE E  
with Strainer

Solenoid Liquid Valves—up to 172 tons. Solenoid Suction Valves—up to 28 tons. Thermo Expansion Valves—from fractional tonnage to 125 tons. Automatic Expansion Valves—from fractional tonnage to 60 tons.

the COMPLETE LINE  
of refrigerant  
controls

## SUCTION LINE CONTROLS



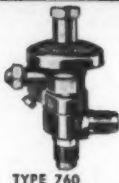
TYPE EPR13

For all refrigerants, with connection sizes up to 6".



TYPE 732  
SNAP-ACTION  
SUCTION VALVE

Temperature operated— $\frac{1}{2}$  ton, "Freon-12"—1 ton, Methyl Chloride.



TYPE 760  
"EVAPOTROL"

Pressure regulator— $\frac{1}{2}$  ton, "Freon-12"— $\frac{3}{4}$  ton, Methyl Chloride.

For capacities in excess of those listed, write us for further details and give specific requirements.

447-448

SOLD BY

**HARRIS SUPPLY COMPANY**

GRAND RAPIDS, MICH.  
878 Grandville Ave., S.W.

KALAMAZOO, MICH.  
9-11 Mills Street

RIBR



